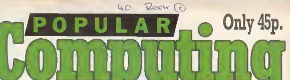
40 Rock (c)



11-17 July 1985

It's the best selling weekly

Vol 4 No 28

First CD Roms out this autumn

MICRO USERS could soon be accessing databases the size of the *Encyclopedia Britannica* – from one 12 centimetre laser-read compact disc.

Atari hopes to be the first to launch a CD Rom player – its device, based on a Philips drive unit and shown at June's CES, will be launched in December or January at around $600 (£450)

Both Sony in the UK and Philips have prototype compact disc Rom players, and a number of other electronics companies, including Amstrad, are looking at similar devices

The Philips CD Rom player is a new version of its audio CD player, leaving out digital to analogue conversion

A spokesman further confirmed that Philips will also be introducing a controller, connecting the CD Rom player to a personal computer' this year

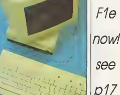
"Maybe not for every personal computer, but we will be offering the drive to the hardware companies to incorporate into their units"

Amstrad has already been in discussions with Philips about its CD Rom drive, according to one source at Philips William Poel of Amstrad confirmed that he had seen the Atari drive at CES, and was "very interested".

In North America, drive units have been available to OEMs (original equipment manufacturers) since early this year, according to a newsletter from 3M, the disc and tape company, which was involved in the development of the system with North American Philips

Nigel Murphy, 3M UK's

continued on page 4 ▶



ACT F1e now! see p17

MSX prices slashed by Dixons

MSX MICRO costs look set to plunge as Dixon's, the high street chain store, announced it has cut prices by more than half

The Toshiba HX-10 model is now selling at £99 and the Sony Hit Bit is priced at £149.99. This compares with suggested retail prices of £239 for the HX-10 and £299 on the Hit Bit

"We don't have any control over retailers' prices, so

continued on page 5 ▶

picture courtesy of Bicycle magazine

ACTIVISION'S latest program is a topical one – a Tour de France cycle race simulation.

Tour de France, *the game, takes the player on a 2,500 mile circuit through France following the 22 stages of the real life cycling marathon – probably the world's best known cycling event.*

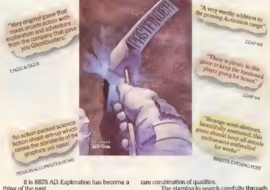
This year's race began on June 29 with the cyclists racing one stage each day until July 21 British hopes are pinned on Robert Millar, who last week was maintaining his place in the top quarter of the 180 riders.

Activision's computer game title, unusual in that it has been developed in the UK, costs £9.95 and is available on Commodore and Spectrum

INSIDE ❯ 256K XE WITH BUILT-IN DISC LIKELY FROM ATARI – P5 ❯

Pastfinder. For serious arcade players.

WHAT THE CRITICS SAY



It is 8878 AD. Exploration has become a thing of the past.

Everything there is to know about our universe is known.

So it is natural to look backwards.

An elite group of interstellar explorers have been given the critical task of journeying back through time to unearth the mysteries and adventures of the past.

The Pastfinders.

To join their ranks, one must possess a rare combination of qualities.

The stamina to search carefully through hundreds of uncharted lands. The ability to dissect complex maps.

The perception to select only the proper tools for survival. And the unending desire to live dangerously. Pastfinder stretches all your game-playing skills to a new level.

It is truly three-dimensional.

It insists that you use your brain at least as much as your co-ordination of hand and eye.

AVAILABLE ON COMMODORE C64 CASSETTE AND DISK.

ACTIVISION
HOME COMPUTER SOFTWARE ™

CONTENTS

Vol 4 No 28

Getting in on the ACT – inside the F1e

EDITORIAL

The row Amstrad has got itself into over its twin cassette unit capable of tape-to-tape copying – described last week by one Amsoft employee as a fiasco – at least serves to highlight the extent of the home taping problem.

Anyone can copy material recorded on an ordinary compact cassette. You don't need a twin player unit – that just makes it more convenient. And the result if you pass it to a friend is technically a crime. Not a very big one some would say – like dropping your sweet wrapper on the pavement.

Ever since the introduction of the compact cassette the home piracy problem has been treated by the software and music industries as insurmountable. The crime is widespread, untraceable and worst of all as far as they are concerned it is socially acceptable. They have had to learn to live with it.

Now a solution to their dilemma has emerged: the compact disc. These laser player discs are read only devices: they cannot be rerecorded and best of all for the record industry, they offer a quantum leap in terms of quality of reproduction. Consequently demand is high, and people are prepared to trade off ease of duplication for quality.

Now, compact disc players look set to make a significant impact in the micro world. Micros being technology personified, though, the compact disc player has miraculously been transformed into the CD Rom player. A metamorphosis largely comprising a new case.

They can store staggering volumes of data and access times are very short. The market for micro compact discs is forecast to reach $½bn by 1990 and why not? They do represent a quantum leap in terms of data storage capacity – bytes per buck if you like.

Yet the reason why every micro manufacturer – all the MSX companies, Philips, Atari, Amstrad – will push CD Roms so hard is because being non-magnetic media they are secure.

Which equates to money in their banks and just rewards for software authors.

Editor David Kelly **News editor** Christina Erskine **Features editor** Graham Taylor **Software editor** John Cook **Staff writer** Martin Croft **Production editor** Lynne Constable **Editorial secretary** Lucinda Lee **Advertisement manager** David Lake **Assistant advertisement manager** Jeremy Kite **Advertisement Executive** Diane Holyoak **Classified executive** David Osen **Administration** Geraldine Smyth **Managing editor** Duncan Scot **Publishing director** Jenny Ireland **Published by** Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 **Typeset by** Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. **Printed by** Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. **Distributed by** S M Distribution, London SW9. Tel 01 274 8611 Telex 261643 (c) Sunshine Publications Ltd 1985.

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Computer Trade Association Magazine of the Year

Acorn projects stalled

ACORN'S failure to resolve its deepening financial crisis has begun to affect progress on a number of new development projects and last week resulted in the postponement of the launch of a new range of business micros

Cautious moves were made last week in talks to try to resolve the company's problems between Acorn, its creditors and Olivetti, the Italian company which spent £10.4 million in an earlier rescue bid in February.

A plan has been proposed under which Olivetti would inject more cash as part of a second rescue package worth up to £20 million

Olivetti has however issued a statement claiming that no such package has yet been officially agreed First, Close Brothers, Acorn's merchant bank has to submit detailed plans for further restructuring

The strain of the uncertainty at Acorn is beginning to show Work on the Alvey-funded speech recognition program has already been dropped and research – again in speech – backed by Esprit and proposed by Olivetti has not yet begun.

Two weeks ago, Acorn was due to launch a series of powerful work stations based on National Semiconductor's 16032 32-bit chip and priced between £3 500 and £5,000 The launch has been delayed, apparently, because it was feared that attention would focus at the launch on Acorn's current financial problems and not on the new machines However, the machines have not been made available, with or without a formal launch.

Its ABC range too, announced a year ago and previewed at the *Personal Computer World* Show last September, has yet to appear After the first Olivetti rescue, the well-received IBM-compatible machines based on the Intel 80286 chip were dropped altogether, and Acorn announced that the other micros in the series would become available as OEM products only

However, since then, no ABCs have appeared in any form

CD Rom players

◀ continued from page 1

Product Manager, Diskettes, believes that CD data storage is "the technology that will substitute for all forms of recording media in 10 to 15 years time." 3M's corporate view suggests that optical memory systems will take off within "the next few years, with yearly 'consumption' of optical discs expected to reach half a billion by 1990."

"CD Rom falls under the optical memory heading, all being researched in the States at the moment," said Nigel Murphy

3M in the US is offering its major customers two types of CD memory storage system – either Rom or 'Write Once'. The latter are "user recordable, non-erasable discs".

3M earlier this year purchased from Philips a system for mastering CD Rom discs, and has joined with Philips in an attempt to impose their system as an industry standard

Meanwhile, Sony has shown a CD Rom drive at the Micro Computer Show '85 in Tokyo and a version of that drive has recently been undergoing evaluation trials at Sony UK's offices in Staines, Middlesex.

John Whitehead, in charge of the Sony UK team looking at the CD Rom player said 'We have a sample disc drive, linked to an IBM PC AT, with a couple of data discs and we are looking at it to work out interfacing problems "

"The pressing program used for manufacturing CD Rom discs is the same as for CD audio discs," he added "You do need some additional coding information on the disc, but that presents no problem as there is of the order of 540 megabytes of storage capacity on a disc.

"We could be looking at it to sell to other computer manufacturers so they could build it into their machines, or as an own brand product " he said.

"You can put whatever you want to on the discs – it could be computer data, graphics data, digitised TV pictures or audio "

"We are working on 'Write Once' devices, and also Read/Write using either magneto optical or amorphous metals," he added

According to 3M, most of the world's largest electronics companies are now working on optical memory systems, including Canon, Hitachi, NEC, Optical Peripherals Laboratory, Panasonic, Philips, RCA, Sanyo, Sharp, Sony, Storage Technology and Toshiba

Sinclair seeks independent returns test

SINCLAIR Research has agreed to an independent survey on the level of returns for its products being carried out, in the hope that past allegations of the unreliability of Sinclair machines will be shown to be unfounded

The scheme has been drawn up jointly by Sinclair and trade newspaper *Computer Trade Weekly*

"The idea is that the box for each Sinclair product, starting with the Spectrum Plus, but expanding later to the QL and pocket TV, will contain a card If the machine is faulty, the customer should fill in details on the card and send it to *Computer Trade Weekly*," explained the newspaper's editor Greg Ingham. The paper would then be able to monitor the level and seriousness of the complaints

"Commodore has also agreed to the idea in principle and we are hoping to interest other companies such as Amstrad and Enterprise to make it a fully representative survey," Greg continued.

"Sinclair is looking for a truly independent source to carry out and interpret research. The card idea, while in early stages, is an option," said a Sinclair spokesman.

Beeping Rom solves lost key problems

THE KEY TRACER is a new device to help you find your keys if you lose them.

It is a special keyfob which attaches to a key ring containing a bubble memory Rom, powered by two hearing aid type batteries, pre-programmed to respond to the noise of handclapping

The Tracer will respond to the sound of three handclaps by 'beeping'. The device has a range of around 12 feet, sufficient to react in an ordinary room.

The Key Tracer is available now, price £6 95, from Dudley Langmeed Enterprises 16 Bedford Street, Hitchin, Herts (0462 35928)

Maplin anuounces fallen hero

MAPLIN Electronic Supplies has announced price cuts for its leading robotic products, Hero Jr and Zero 2

Hero Jr now costs £549 95 in kit-form and £749 95 fully assembled. Zero 2, available in kit form only, is £79 95

Maplin is currently developing interfaces for Hero Jr for the Spectrum, Commodore 64 and BBC It is also planning a software aerobics program for Hero Jr called *Herobics*

Atari's range to include 260XE?

ATARI is now strongly rumoured to be considering a 256K Ram capacity addition to its 8-bit XE range of micros, following the announcement of its new 256K 16-bit 260ST and 260STD models (see *Popular Computing Weekly*, July 4)

The 260XE, like the 260STD is expected to include a built-in disc drive The micro is aimed at the top end of the games market, and will sell for just under $200 (around £155)

Atari UK's technical manager Les Player declined to comment on plans for a 260XE machine. "It's certainly technically possible, and that price would be Tramiel-ly possible," he said. "But we are not prepared to comment on products that may not be out until some months ahead." A spokesman for Atari US, however, hinted at an autumn announcement.

Currently the range consists of the 128K 130XE, available here, in Europe, and in North America, and the 64K 65XE, sold in Canada

Honeywell's fastest chip in the west

HONEYWELL, the American business computer giant, claims to have achieved a breakthrough in semi-conductor technology

At its physical sciences centre in Minnesota, researchers reckon they have developed the fastest transistor yet. Using gallium arsenide rather than silicon as a semi-conductor, electrical signals travel across the device in just over 11 trillionths of a second. The signal moved nearly twice as fast when the device was cooled to the temperature of liquid nitrogen

Gallium arsenide is tipped to take over from silicon as the material used in chips. It is faster and more resistant to radiation, which makes it much more suitable for some work

Seymour Cray, the company which makes the world's most powerful computer, the Cray 2, is developing gallium arsenide chip for use in the Cray 3, and Honeywell itself is working on a prototype production line to manufacture gallium arsenide chips, funded by a grant from the US department of defense.

MSX prices slashed

◄continued from page 1

there's not a great deal we can do, although obviously we don't like it," said Chris Greet, Toshiba UK's home computer product manager "We don't really understand their action as they will be selling the machines at a loss"

Steve Dowdle, product manager at Sony, said, "We're not the retailer, and we cannot tell Dixon's what to do"

Dixon's, apart from confirming the discounts, declined to comment further on the offer

C is for Commodore

DYNAMITE SOFTWARE has introduced a full C language compiler for the Commodore 64

Called *C Power*, the compiler follows closely the C language as defined in Kernighan and Ritchie's definitive book *The C Programming Language*

The package is available on disc, and comes with a hefty 531-page manual.

C Power costs £122 46, including postage and packing Details from Dynamite Software, BCM 8713, London WC1N 3XX.

Letters

Mass produced

May I remind the population that a dongle is not a device for plugging into the back of a computer to hold part of the operating system – see *Hackers*, June 27 – but a device to discourage copying, without which certain programs refuse to run

Its main advantage is that it is difficult to produce in one-off quantities, yet fairly simple for mass production to cope with. Thus the dongle acts as a successful deterrent to would-be home copiers

Peter devin
62 St Denis Road
Sally Oak
Birmingham

Strictly speaking this is so, but with the QL, for example, 'dongle' came to mean – no doubt by way of humour – a device without which the whole micro fails to run.

Correct facts

In your review of *Elite* for the CBM 64 in the 20-26 June issue, the reviewer, Martin Croft, devoted one third of the review to state that the docking computer is far superior to that on the BBC version If Mr Croft had taken the time to play the disc version of *Elite* for the BBC, which has more ships, he would have noticed that it too has a docking computer that automatically guides your ship in while you watch. Admittedly, no music plays while you dock

Mr Croft also states that a new command is available to turn off the lines indicating polar ice caps This command is superfluous to the experienced BBC player as he just switches to the rear or side screens where no sun or planet is being displayed. The reviewer also says that *Elite* on the 64 loads in the amazing time of 30 seconds. Wow! CBM 64 users will therefore be astounded to learn that the BBC version loads in under 10 seconds Other games on the BBC load in an equally "speedy" time WITHOUT fast loaders for disc

There are only a few good games on the BBC at the moment; *Elite*, *Castle Quest*, *Knightlore*, *Atic Atac* and *Alien 8* (other software houses may disagree) So Mr Croft, kindly resist the temptation to have a dig and a sneer at a computer which is not thought of very highly in the computer games world, mainly because of its small memory, until you have got your facts correct.

Russell Jefford
143 West Close
Medmenham
Marlow
Bucks

At no point in the review does the reviewer state that the Commodore version of *Elite* is better than the BBC original.

You appear to feel that the reivew was an attack on the BBC – it certainly wasn't intended as such.

Rather, it was an attempt to tell Commodore owners about a new game for their computers.

The fact that Commodore 64 *Elite* on disc loads in 30 seconds is included because most Commodore discs take a very long time – not as any comparison with the BBC.

Older and wiser

I am sick to death of reading that the computer boom is over, and the industry is dying

The computer industry is growing up, that's all. There are still thousands of home computer owners who are just as dedicated as they ever were, but now they too have grown with the industry and are far wiser, and refuse to buy rubbish.

The present problems, during this transition, result from the beginning, when anyone could set up in business and sell software, to the fast approaching time when only the best will be good enough.

During this transition, the home user is simply being cautious, but we are equally aware that brilliant products are now appearing

Brian Waltham
68 Livingstone Road
Birmingham

A biased view?

As one of the companies mentioned by Mr Sleight in his letter about alignment kits, you may think we have a biased view about the need for such kits However, Tony Kendle's review showed the need for such a system We have run extensive electronic tests on our product and have discovered that when cassette decks are properly set up with our system, their output is about as good as it is possible to obtain

Interestingly when we ran a number of blind tests using a technique similar to the one described by Mr Sleight, great variations in signal output were evident Where a computer is even relatively sensitive about its cassette operation, such a test can lead to real problems in loading further programs A read data routine is really the safest method, because the results can be easily quantified.

Mike Daniels
Managing Director
Global Software
PO Box 67
London SW11

While it is possible to carry out tape head alignment yourself quite easily, an alignment software test program certainly makes the job easier.

BLEEP! BLEEP!

Now your key tracer's located them should I phone the AA?

Summer Freeze

Angus Ross writes in Peek and Poke of his problems with his QL 'freezing'

I too had this problem with a version AH machine and wrote to Sinclair They advised me that there was probably a fault and I duly returned said machine for repair – three times! Eventually I took the machine back to John Lewis where I had bought it and they took the matter up with Sinclair My QL 'froze' annoyingly often in all applications and while using various different software Sinclair apparently told John Lewis that this was impossible since the machine had been repaired. Fortunately I could prove to the manager that the 'freezing' did take place and without argument they replaced the machine for a new JM version Needless to say I have had no more problems to date

Apparently 'freezing' was a problem with early machines so my advice to Angus Ross is – brook no argument, get a replacement.

The QL is a great machine and there is nothing to compete at the price It is just a pity that the promised software doesn't seem to be materialising in any quantity and even titles apparently 'out' are almost impossible to locate – even in central London

R Gould
295 Cavendish Road
Balham
London SW12

Micronet competition

Part 2

Here is the second clue in this competition being run jointly with Thames TV's *Database* Program and Micronet 8000 Remember, there are more clues to come so you don't have to do anything with your answers yet. Full details of where to send your entries will be issued with the final clue

Part A

'It's cathedral spire reaches up to the sky,
The tallest in England, four hundred foot high,
Inside lies a rare copy of an important charter
Signed at Runnymeade, the Magna Carta."

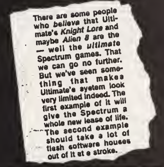
Part B

Stirring rotten tokens produces five towns but only one answer

48K Spectrum

Fairlight

chronicles of the land of fairlight.
I. a prelude. the light revealed
BY BO JANGEBORG


There are some people who *believe* that Ultimate's *Knight Lore* and maybe *Alien 8* are the — well the *ultimate* Spectrum games. That we can go no further. But we've seen something that makes Ultimate's system look very limited indeed. The first example of it will give the Spectrum a whole new lease of life. The second example should take a lot of flash software houses out of it at a stroke.

COMPUTER TRADE WEEKLY Monday June 3 1985

The first example of the revolutionary 3D "Worldmaker" technique

THE EDGE

Fun and games Summer 85

FIVE-A-SIDE

Cheering-whistling-shouting crowd with their banners aloft set the scene for a lively game of FIVE A SIDE played at a fast and furious pace where the skills of passing and shooting are as essential as speed.

Match your skills against the computer at three skill levels or play against another opponent

Before the kick off, the crowd give their enthusiastic support by singing "Here We Go"

Penalty shoot outs are one of many star features of this game

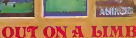
C8M 54 £5 95 (cass) £8 95 (disk)

Available for Amstrad and MSX in early autumn.









OUT ON A LIMB

FEE - FIE - FO - FUM

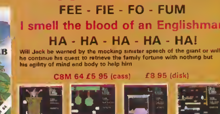
I smell the blood of an Englishman

HA - HA - HA - HA - HA!

Will Jack be warned by the mocking sinister speech of the giant or will he continue his quest to retrieve the family fortune with nothing but his agility of mind and body to help him

C8M 64 £5 95 (cass) £8 95 (disk)







The stunning speech effects in the above programs were generated by ANIROG COVOX VOICE MASTER

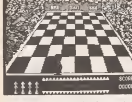
Contact Anirog for further information.







24 HOUR CREDIT SALES HORLEY ACCESS VISA



Knightmare

Program *The Chess Game* **Price** £7.95 **Micro** Commodore 64 **Supplier** Micro Classic, Priory Road, Forest Row, Sussex RH18 5JD

All is quiet and peaceful. It is late at night and you are slowly dozing off to sleep. Only a faint murmor penetrates your world of tranquility. But what is happening? A huge chessboard is slowly forming.

The Chess Game is no ordinary *Chess* simulation. Instead, it simulates one of your worst nightmares. You are the pawn on a gigantic chessboard, and all the other pieces are after you.

The title screen for the *Chess Game* is pretty impressive. It shows a small girl lying in bed asleep, with a chessboard on her bedside table. When the game starts, the screen is transformed into a sort of gladiatorial arena, with the chessboard situated in the middle. The crowds shout and wave, waiting for the contest to commence. One criticism I must make is of the appalling instructions. Anyone not familiar with the basic rules of proper chess would be rather bewildered.

After working out how to play, however, you find that the actual game makes up for the bad instructions.

Tom Hussey

Wording

Program *Superscript* **Price** £69.99 **Micro** Commodore 64 **Supplier** Precision Software, 6 Park Terrace, Worcester Park, Surrey

Superscript from Precision Software is both a powerful word processor in its own right and also an upgraded version of *Easy Script*. If *Easy Script* users want to shell out £69.99 to get the full works, *Superscript*, it will automatically convert most *Easy Script* files.

The basic differences between the two are terminology ('fill file' becomes 'mail merge', for example) and power. *Superscript* is bewilderingly powerful: wordwrap, justification, choice of column width, block moves, numeric tabs, spelling checkers, letter merge, all this is peanuts to it.

For those who don't know *Easy Script*, *Superscript* works on a menu within menu basis, you bash away in Edit mode, then use Command mode to tidy up the document. Within Command mode there are lots of short cuts (erasing words, paragraphs etc, either with cursors, or *Inst/Del*, or *F1 Erase*, whichever seems simplest at the time) and the emphasis is placed much on final revision and checking, rather than doing it as you go along.

Having done the tidying and parameter setting for the printer, the document as it will appear on paper as a final check.

It also (three cheers) pays an enormous amount of attention in the manual to printers, largely, 'troubleshooting with the printer' which means it isn't printing anything except lines of DDDDDDDDDs. In my experience, getting a document to print out usually takes twice as long as it did to write it, so I'm grateful for more than a cursory few lines.

What does take an eternity (about 20 minutes) on *Superscript* is the initial formatting of your work discs. Still, hopefully the one disc will take a fair few files and you won't have to go through the procedure too often.

At £69.99 it is not cheap, and thus not for the casual user. But it could be the answer to a prayer for someone who word processes a lot and wants a really powerful game.

Christina Erskine

High power

Program *Devpac 80* **Price** £39.99 **Micro** Amstrad PC + disc/Tatung Einstein **Supplier** HiSoft, 180 High Street North, Dunstable, LU6 1AT.

There are plenty of reasons to regard HiSoft's *Devpac* assembler package with respect – it is perhaps the most sophisticated and powerful of the various such utilities available for the Amstrad range.

Devpac 80 is the CP/M version of this program and as such there are several important differences.

For a start, although you can use an ordinary assembler to produce CP/M compatible code, and vice versa, there are some disadvantages in doing so. If nothing else it is far better if you can test the code simply from within the operating system to which it applies.

Perhaps more important, however, is that the CP/M version of *Devpac* has been written to fully exploit the strengths of the medium. Disc handling from the assembler in particular is absolutely superb.

There are three modules to the package – *Ed80* is a full screen editor which has excellent block *Cut* and *Paste* commands, auto indentation, good *Search*, *Replace* and *Insert* modes but, as is so common with such things, relatively poor printer control. The control sequence for cursor movement, deletion etc have all been defined as compatible with the equivalent *Wordstar* sequences – a remarkably sensible move for a CP/M editor, although you can easily redefine them to use the same keys as a different utility such as *Amsword* if you would rather. *Help* menus are available at a keypress which summarise the commands.

Gen80 is the assembler module which includes the following special features: macros that are called by their label name with the appropriate parameters, direct keyboard input of text to be assembled as though it was part of a file. Files which can be called from disc and assembled within other files by the powerful *include* command – these can be nested and recursive and almost provide a high-level function in that programs can be written as small 'procedures'. Virtual discing, which allows owners of only one drive to code as thought they had several, direct control over symbol table size or the number of significant characters in a label, as well as many more options that are usually fixed in most assemblers. Many arithmetic and logical operators, conditional assembly which can produce different results if coding for different machines for example, assembly to disc and production of symbol files for debugging purposes – the list goes on.

Mon80 is the disassembler/monitor module. On screen you have provided at the same time the disassembled memory, the hex values of the memory itself and the corresponding ascii codes.

The documentation reflects the quality of the package. It is helpful if advanced, and even goes so far as to give details on patching your own code to change the modules.

There is also a very good tutorial at the back that goes some way to teaching the rudiments of CP/M programming as well as how to use *Devpac*.

Tony Kendle

Look see

Program *Ancient Quests* **Micro** Spectrum 48K **Price** £7 95 **Supplier** Mirrorsoft, Holborn Circus, London EC1P 1DQ

There's been a spate of excellent releases from Mirrorsoft recently, and here we have, back-to-back, two educational arcade games for five to eleven year olds which are best seen as under-age versions of *Sabre Wulfe* and *Atic Atac*.

King Tut's Treasure involves steering an archaeologist, armed only with a metal detector, round a desert inhabited by prowling nasties, in search of various treasures These can be as simple as shapes that must be matched or as complex as fractions to link to their decimal equivalents The detector's rising pitch indicates a 'find' and all that remains is to dig it up and, if it's what you're seeking, return it to the start

The Count is perhaps not surprisingly concerned with a combination of simple arithmetic and Dracula. Search the castle room by room, solve the maths problems and watch the Count crumble to dust It's an attractive looking game with amusing spooky ghosts, rats, and assorted nasties

Both of these are a great advance on previous educational arcade games, which have all too often turned out to be space invaders with sums in addition to their more obvious benefits they both call for some mapping A joystick is almost obligatory for *Tut* owing to the use of the inconvenient cursor keys. I have slight doubts about their addictive qualities, though both cater for a wide range of abilities, and with both on one tape they're a pleasing attempt to reach a young audience

John Minson

Inoffensive

Program *Cryptamania* **Price** £6 50 **Micro** BBC B **Supplier** Black Knight Computers PO Box 132, Chislehurst, Kent, BR7 6JX.

Cryptamania is an inoffensive sort of game The plot, though not startlingly original, is OK – you are a gun-toting explorer trapped in a pyramid, and must collect four coloured keys (while avoiding and zapping nasties) before proceeding from one level to another (faster) level. The programming is competent, with adequate graphics, good scrolling and Pause, plus Music on/off functions However, at the end of the day, the result is a pretty run of the mill arcade game.

This is no arcade adventure – no puzzles to solve or conundrums to ponder over here – just straight moving and zapping in a fairly uninspired fashion. Acceptable at the level of a £1 99 cheapie – slightly less so at £6 50 I think

At this price, you almost start competing with the likes of Ultimate or the best of Acornsoft And up against that sort of competition, the majority of the present generation of BBC games software looks pretty silly indeed

Charles Hall

Familiar

Program *War Machine* **Price** £1 99 **Micro** Commodore 64 **Supplier** Pocket Money Software, St Austell, Cornwall

Alone, at a distant outpost of the Empire, you have been assigned the task of guarding the world's remaining neutronium deposits Right now, however, your only concern is staying alive

Sounds familiar? Well, it's *Moon Buggy* time again.

While petrolling the lunar surface you are under constant attack from the enemy saucers above With the aid of a vertical missile launcher and a bit of deft timing, you must dodge the explosions and return fire Also, from time to time, it is necessary to blast the odd, stray, mining vehicle out of the way.

Standards of budget-priced software are improving rapidly, and I'm afraid that *War Machine* doesn't live up to the high expectations created by companies like Mastertronic or Firebird.

My advice – leave your cash in the piggy bank

Tom Hussey

3D Tanks

Program *Tankbusters* **Price** £7 95 **Micro** CPC 464 **Supplier** Design-Design Software, 125 Smedley Road, Cheetham Hill, Manchester M8 7RS

Doubtless there are many readers who will find the very concept of this game tedious in the extreme – unless you like zapping read no further But for those brave souls who remember coming home, weak kneed, shaking and penniless after two hours on a *Battlezone* machine it is a release of some import

The cover of the cassette and, not surprisingly, the graphics both owe a lot to Design-Design/Crystal's earlier Spectrum attempt at this game – the slow *Rommel's Revenge* In the blurb it puts a lot of emphasis that the vector graphic programming techniques owe a lot to their more recent *Dark Star* – but the end result is, in my opinion, much better than both of them For once we have a conversion of the game where chasing the enemy tanks, particularly the very mean ones that appear some way into the game, is the sort of fast breathless panic it is supposed to be

There is also the, now traditional, much enjoyed, high score table that answers back

One for enthusiasts only, but I'm sure that they will have few complaints, beyond the lack of the flying saucers to provide some variation

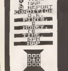
Tony Kendle

Paralytic

Program *Happy Hour* **Price** £1 99 **Micro** Spectrum 48K **Supplier** Scorpio Gamesworld, 307 Corn Exchange Buildings, Cathedral Street, Manchester

Have you ever suffered one of those bores who bends your ear ters, and searching for hostelries before returning home to face the wrath of 'her indoors' Unluckily you don't know where the ale houses are located but the innate radar of the inebriate indicated if one is in the surrounding sparse, though only at a cost

There have been boozing games before (Automata went through an alcoholic spell) and as they're less likely to damage the liver, if not



about how in his day beer was so cheap you could get paralytic for a pound?

Nowadays, particularly after forking out for your Spectrum, you can't even afford for attain the lowest levels of alcoholic poisoning. Now into the gap steps Scorpio with a program based on Wobbly Wilf's pub crawl.

Like any good drinking bout you have to wander round town, collecting pound coins from pavements, avoiding tripping into invisible gut- the brain, than the real thing, I suppose they should be praised. But despite its competent if uninspired programming this one is no alternative to the demon drink. Unless you're already rissed as a pewt it's likely to prove so random, so pointless that even at this low price the money would be better spent on a couple of pints of Scruttock's Old Emetic

John Minson

Colour code

Program *Supertype* **Micro** Commodore 64 **Price** £19 95 **Supplier** Precision Software, 8 Park Terrace, Worcester Park, Surrey

Something of a departure for Precision from its business software is *Supertype*, which aims to teach fast (around 30 words per minute) touch typing in eight-10 hours

The whole package is very carefully thought out and well-designed. The method of teaching revolves round the use of coloured circular tabs to stick on the keys – each colour denoting that a certain finger must be used for that key. Precision supplies a lot of these stickers – much more than needed for the keyboard. I can think of some companies which would make you buy your own

While the colour association (blue – index finger, green – little finger, etc) certainly works the stickers have a very high nuisance rating; there are the ones which fall off and the fact that, I imagine most serious users will want to practice the typing ety, once a day, and use the computer for other functions in between, they could well become irritating

So the stickers are a mixed blessing, but the documentation and gradual progression of the exercises is very clear and well planned.

Each exercise concentrates on a certain combination of fingers, beginning with the letters going on to words then sentences A full assessment of your performance is given at the end which times your wpm rate, tells you which keys to practice, and which fingers to pay attention to.

There are three exercises for the letters, one for numerals, and then a consolidation exercies using whole pieces of text. *Supertype* suggests you don't move from one exercise to the next until you've achieved a rating of 'good'

Obviously, anything like this needs the user to have a certain amount of self-discipline – I have to admit it was far more satisfying to get a 'very good' rating with two fingers than 'not good' with all eight – and eight 10 hours may be optimistic

Having said that, I reckon anyone who seriously wants to learn touch typing can do so without tears with this package

Christina Erskine

On the beach

Program *Beach Head* **Price** £9 95 **Micro** CPC 464 **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY

This conversion of what was a smash hit war-based arcade game on the Commodore and a similar great success on the Spectrum, has doubtless been long awaited by many Amstrad owners However it must be pointed out that the retrospective opinion of many people who own those machines is that the game, although initially entertaining, soon palls and becomes rather boring – a feeling that I must go along with after just an evening of playing this version.

Doubtless you are familiar with the various screens of the game – guiding your flotilla of battleships through torpedo laden waters, a simple stop-start, left right exercise, blasting away at the enemy aircraft and battleships – up, down, left, right, fire, guiding your tanks through the 3D view obstacle course – left, right etc Really it has to be put into that pile of games that bewitched people by the original quality of the graphics and sound, never mind the plot, and considering the outrageous price it could be a case of 'Yankee Go Home'

Still, the Amstrad conversion is competent. It shows a promising ability to exploit the hardware but lacks many of the super little touches that characterised the earlier releases – the animated figures of the Spectrum version for example Doubtless it will do well on the basis of its reputation, but I'm sure that there must be a lot of more worthwhile stuff to be seen from the US Gold stable

Tony Kendle

A Day At The Races

Place your bets on this game for the Atari by Tom Wharton

As you might expect, this game is a horse racing simulation game – simple but fun to play. Although it is an all text game, good use is made of colour and sound. It is written in Atari Basic and uses just under 8K.

It can easily be converted for other micros, there are only a few Atari specific commands used which can easily be substituted and only two pokes in it – *752,1* removes the cursor and *756,204* accesses the international character set so that the '£' sign (CHR$(8)) can be used. On a few of the lines there are some characters in heavy type: this indicates that they (and spaces in between) should be entered in inverse video. The program is written in such a way that should make it extremely easy to type in and understand.



```
1 REM     *********************
2 REM     * A DAY AT THE RACES *
3 REM     *   by Tom Wharton   *
4 REM     *********************

10 CLR CLOSE #1 OPEN #1,4,0,"K "
20 DIM WINNER$(17),SURF$(4),S$(4)
30 DIM HOR(5),STAK(5),TOT(5)
40 DIM NAGA$(13),NAGB$(17),NAGC$(17)
50 DIM NAGD$(17),NAGE$(16),NAMA$(6)
60 DIM NAMB$(6),NAMC$(6),NAMD$(6)
70 S$="    " REM Four Spaces
80 GOSUB 3000 REM * INSTRUCTIONS *
90 GOSUB 4000 REM * ENTER NAMES *
100 RESTORE 2000 RACE=0 FOR N=1 TO 1 TOT
(M)=100 NEXT M
110 RACE=RACE+1 GRAPHICS 0
120 POKE 752,1 POKE 756,204
130 SETCOLOR 2,15,0 SETCOLOR 4,12,0
140 G=INT(RND(0)*3)+1
150 IF G=1 THEN SURF$="FIRM"
160 IF G=2 THEN SURF$="GOOD"
170 IF G=3 THEN SURF$="SOFT"
180 IF RACE=6 THEN ? "FINAL RACE"
190 IF RACE<6 THEN ? " RACE NO ";RACE
200 POSITION 18,0 ? "the going is ",SURF
$
210 ? ? S$," ** THE RUNNERS ARE ** "
220 FOR P=1 TO 100 SOUND 0,50,10,10
230 NEXT P SOUND 0,0,0,0
240 READ NAGA$,NAGB$,NAGC$,NAGD$,NAGE$
250 ? ? NAGA$,"Fav. EVENS prefers GOOD"
260 ? ? NAGB$,"at 2-1 prefers FIRM" ?
270 ? NAGC$,"at 5-1 prefers GOOD" ?
280 ? NAGD$,"at 7-1 prefers SOFT" ?
290 ? NAGE$,"at 10-1 prefers FIRM" ?
300 ? S$," ** PLACE YOUR BETS ** " ?
310 FOR N=1 TO I
320 POSITION 2,15+(INT(N*1.8))
330 ON N GOSUB 340,350,360,370 GOTO 380
340 ? NAMA$ RETURN
350 ? NAMB$ RETURN
360 ? NAMC$ RETURN
370 ? NAMD$ RETURN
380 POSITION 9,15+(INT(N*1.8)) ? "has ",
CHR$(8),TOT(N)
390 NEXT N
400 FOR M=1 TO I
410 IF TOT(M)<=0 THEN STAK(M)=0 POSITION
 13,15+(INT(M*1.8)) ? "gone to the dogs
......." GOTO 500
420 POSITION 26,15+(INT(M*1.8)) ? S$
430 POSITION 20,15+(INT(M*1.8)) ? "horse
?",
440 GET #1,HS HS=HS-48 ? HS HOR(M)=HS
450 IF HOR(M)<1 OR HOR(M)>5 THEN 420
460 POSITION 33,15+(INT(M*1.8)) ? S$
470 POSITION 28,15+(INT(M*1.8)) ? "stake
",
480 TRAP 460 INPUT STAK STAK(M)=STAK
490 IF STAK(M)<>INT(STAK(M)) OR STAK(M)<
0 OR STAK(M)>TOT(M) THEN 460
500 NEXT M
510 FOR N=1 TO I TOT(N)=TOT(N)-STAK(N) N
EXT N
520 A=610 B=620 C=630 D=640 E=650
530 X=INT(RND(0)*16)+1
540 ON G GOSUB 550,570,590 GOTO 660
550 ON X GOSUB A,A,A,A,A,B,B,B,B,B,C,C,C
,D,E,E
560 RETURN
570 ON X GOSUB A,A,A,A,A,A,A,B,B,B,C,C,C
,D,D,E
580 RETURN
590 ON X GOSUB A,A,A,A,A,A,B,B,B,C,C,C,C
,D,D,E
600 RETURN
610 Y=1 WINNER$=NAGA$ RETURN
620 Y=2 WINNER$=NAGB$ RETURN
630 Y=3 WINNER$=NAGC$ RETURN
640 Y=4 WINNER$=NAGD$ RETURN
650 Y=5 WINNER$=NAGE$ RETURN
660 FOR Z=1 TO I
670 IF Y=1 AND HOR(Z)=1 THEN TOT(Z)=TOT(
Z)+STAK(Z)+STAK(Z)
680 IF Y=2 AND HOR(Z)=2 THEN TOT(Z)=TOT(
Z)+STAK(Z)+(STAK(Z)*2)
690 IF Y=3 AND HOR(Z)=3 THEN TOT(Z)=TOT(
Z)+STAK(Z)+(STAK(Z)*5)
700 IF Y=4 AND HOR(Z)=4 THEN TOT(Z)=TOT(
Z)+STAK(Z)+(STAK(Z)*7)
710 IF Y=5 AND HOR(Z)=5 THEN TOT(Z)=TOT(
Z)+STAK(Z)+(STAK(Z)*10)
720 NEXT Z
730 FOR D=1 TO 100 NEXT D
740 GRAPHICS 2 SETCOLOR 2,0,0
750 SETCOLOR 0,5,6 POSITION 6,3
760 ? #6,"under" POSITION 2,6
770 ? #6,"starters orders"
780 FOR P=225 TO 0 STEP-1
790 SOUND 0,P,10,8
800 NEXT P SOUND 0,0,0,0
810 FOR T=0 TO 12 SOUND 0,80,50,8
820 POSITION T,3 ? #6," THEY'RE"
830 POSITION T,6 ? #6,"   OFF!"
840 SOUND 0,0,0,0 FOR D=1 TO 15 NEXT D
850 NEXT T FOR D=1 TO 30 NEXT D
860 POSITION 12,3 ? #6,S$,S$
870 POSITION 12,6 ? #6,S$,S$
880 POSITION 2,2 ? #6,"the winner is"
890 FOR N=240 TO 1 STEP-3
900 SOUND 0,N,10,8 NEXT N
910 SOUND 0,0,0,0 SETCOLOR 0,Y,8
920 SETCOLOR 2,X,Y SETCOLOR 4,X,Y
930 POSITION 2,5 ? #6,WINNER$
940 FOR N=1 TO 240 STEP 3
950 SOUND 0,N,10,8
960 NEXT N
970 SOUND 0,0,0,0
980 FOR D=1 TO 200 NEXT D
990 IF RACE<6 THEN 110

1000 FOR P=1 TO 10 SOUND 0,30,10,12
1010 NEXT P SOUND 0,0,0,0
1020 FOR P=1 TO 10 SOUND 0,50,10,10
1030 NEXT P SOUND 0,0,0,0
1040 GRAPHICS 1 POKE 752,1
1050 SETCOLOR 2,0,4 SETCOLOR 4,Y,4 SETCO
LOR 0,12,2 POSITION 0,1
1060 ? #6, "the meeting is over"
1070 POSITION 1,5 ? #6,NAMA$," HAS ",TOT
(1)
1080 IF I>1 THEN POSITION 1,8 ? #6,NAMB$
" HAS ";TOT(2)
1090 IF I>2 THEN POSITION 1,11 ? #6,NAMC
$" HAS ",TOT(3)
1100 IF I=4 THEN POSITION 1,14 ? #6,NAMD
$" HAS ",TOT(4)
1110 ? "Press  Restart from the beginnin
g."
1120 ? "    or  Start again with same pun
ters."
1130 ? "    or  To quit."
1140 GET #1,KEY
1150 KEY=KEY-61
1160 IF KEY<1 OR KEY>3 THEN 1140
1170 ON KEY GOTO 10,100,1180
1180 CLR GRAPHICS 0 END

2000 DATA 1.BOB BOY....,2.DARK SECRET...
..,3.AFRICAN DREAM..,4.ROYAL PARADE...,5.
THE OUTSIDER .
2010 DATA 1.LIKELY LAD..,2.TROTTING TOM..
..,3.DADDYS BOY. . . ,4.YOUNG PRINCE...,5.
NO HOPER......
2020 DATA 1.LOCAL HERO..,2.RUNNING WILD..
..,3.AUSTRIAN STAR...,4.FINAL FLING....,5.
UNLUCKY LOSER.
2030 DATA 1.DICTATOR....,2.DISTANT COUSIN
..,3.JOEYS NIGHT.....,4.OFF THE RAILS..,5.
COR BLIMEY....
2040 DATA 1.CHATTERBOX..,2.DREAMY LADY...
..,3.PERFECT CRIME...,4.BOX OF TRICKS..,5.
HOORAY HENRY..
2050 DATA 1.SOLID GOLD..,2.EAST STREET...
..,3.MOTHERS RUIN ...,4.IRISH HOPE.. ...,5.
THE JOKER.....

3000 GRAPHICS 0 POKE 752,1
3010 SETCOLOR 2,0,4 SETCOLOR 4,5,2
3020 ? S$,S$,"** Welcome to **"
3030 ? ? S$," *  A DAY AT THE RACES  *
3040 ? ? S$,"The meeting contains six ra
ces."
3050 ? "the race card is shown before ev
ery"
3060 ? "race begins."
3070 ? S$,"Study the going and the odds
and"
3080 ? "from it choose a likely winner t
hen"
3090 ? "enter its number and your stake
when"
3100 ? "prompted to do so."
3110 ? S$,"Once all bets are placed, sit
"
3120 ? "back and wait for the winner to
be"
3130 ? "announced." ?
3140 FOR D=1 TO 100 NEXT D
3150 FOR S=1 TO 15 SOUND 0,40,10,10
3160 NEXT S SOUND 0,0,0,0
3170 RETURN

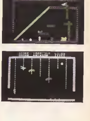
4000 ? " How many punters are there (1/4
)?"
4010 GET #1,I I=I-48
4020 IF I<1 OR I>4 THEN 4010
4030 IF I=1 THEN ? ? "Enter your name To
ne punter, no more  than six letters ple
ase ", INPUT NAMA$ GOTO 4090
4040 POSITION 2,15 ? "Please enter their
 names with no more than six letters per
 name...." ?
4050 ? S$,"1st punters name", INPUT NAMA
$
4060 ? S$,"   2nd punters name", INPUT N
AMB$
4070 IF I>2 THEN ? S$,S$,"  3rd punters
name", INPUT NAMC$
4080 IF I=4 THEN ? S$,S$,S$," 4th punter
s name" INPUT NAMD$
4090 POSITION 6,22 ? "..PRESS ANY KEY TO
 BEGIN.."
4100 GET #1,KEY
4110 RETURN
```

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Getting in on the ACT

Top-down approach ***Andrew Pennell*** *reviews ACT's home business micro – the F1e*

Shortly after the release of the BBC B Plus, ACT – best known for its Apricot range of business micros – took great delight in announcing a price cut of their F1e micro, to just £225 above Acorn's price For that you get a built-in disc drive, 256K Ram (rather than 64K) and a 16- rather than 8-bit processor.

The package seems ideal at first sight for either the small businessman or the keen hobbyist – a similar market to Acorn's – offering an impressive hardware specification and bundled software for £685

Hardware

The hardware part of the F1e package consists of two main components – the systems unit, and the keyboard.

The systems unit contains the main processor board, using the 16-bit 8086, processor, 256K of Ram, parallel and serial ports, and a built-in 315K 3 5inch floppy disc drive. It is housed in a long thin box, which has a lower section towards the front on which a monitor can rest. The size of this area is such that the ACT monitors are the only ones small enough to fit, thanks to their small footprint. All the connectors and the on/off switch are on the back of the unit, the only control on the front being a disc eject button.

Incidentally, some of the photos of the F1e in adverts give a false impression of how big it is as the monitor is positioned to obscure the length of the main unit

The keyboard is as wide as the case is long, containing some 90 keys It is quite thin, so to give it a suitable typing angle there are some hinged feet on the back that spring down at the press of a button.

The keys themselves are not stepped, presumably because the keyboard is a membrane type However – never fear – as it bears no further resemblance to the dreaded QL or Spectrum+ keyboards, and is quite nice to type on.

In addition to the usual keys, there is a numeric pad, nine function keys and a few miscellaneous keys Above the keyboard on the right are four buttons, labelled *Reset, Repeat Rate, Set Time* and *Keyboard Lock* The *Reset* key has to be held down for some time to reset the machine, as a safety feature, while the repeat button allows the rate to be varied at any time *Set Time* is for the internal clock, though I couldn't get it to work, and the *Lock* button is a way of disabling the keyboard, which I am sure will be useful for someone, only I can't think who

The keyboard follows the latest craze, being linked to the main unit via an infrared link. This is supposed to remove the need for interconnecting cables, but all it does is make the positioning of the keyboard relative to the system unit very critical.

I found it necessary to use the light pipe supplied if I wanted to be able to use the keyboard where I felt like. There is a mouse available, and it also uses an infra-red link I am dubious of the infrared connection on a keyboard, but on a mouse, which by definition is moved around constantly, I would think that the pipe is a necessity

For this review I was supplied with an ACT monochrome monitor, which is colour co-ordinated with the rest of the F1e, and its 9inch screen means it rests happily on the system unit Connection seemed to be a doddle, just plug in the mains cable to the system unit, connect the monitor to its socket, and switch on – but no picture

The manual is so vague it didn't describe why the black and white monitor could only plug into the colour monitor socket, or the fact that the monitor should come with its own power supply that plugs into the back of the system unit – a fact that wasn't immediately realised.

Instead, I used the composite video output from the back into my own monitor, until I discovered the reason for my lack of display

Output from the F1e is normally high-resolution with 80-column text A 40-column mode is available – pressing *F3* switches to 40-column mode, *F1* returns to 80-column. The 40-column mode means that it is possible to use the F1e with an ordinary domestic television although you will need to buy a modulator adaptor which costs around £35 Not all software available for the F1e is configured to adapt to the 40-column display and where software is only 80-column format the screen will overwrite on the same line with the second 40 columns of each line

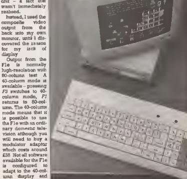
If this doesn't sound too terrific it may still be necessary to consider the domestic TV display option since ACT's range of monitors for the F1e is fairly pricey. The 9inch monochrome monitor supplied with the machine costs a hefty £230, although it did give a very clear stable picture Scrolling text quickly did sometimes give blurred results, though, because of the persistence of the screen

Other monitor options offered by ACT are a 12inch monochrome screen for £287 50 and a colour monitor at £464 25 – two-thirds of the cost of the F1e to start off with

It is possible to get some colour monitors for other machines for less although it does not seem possible to easily connect any other type of colour monitor to the F1e

ACT also offers a number of Ram expansion boards for the F1e which are necessary for running some of the bigger Apricot software packages They are steep – bringing the machine up to 512K costs half as much again as the whole micro/keyboard/disc drive package The Ram boards are easy to install

continued over the page



The rear cover on the F1e can be unscrewed to reveal a socket for the boards

If you want a 10M hard disc unit for the F1e it'll cost you as much as two more F1es!

Software

There is quite a considerable amount of software supplied with the F1e, all running under MS-DOS

Although, in principle, this means the F1e will run IBM software, in practice only data files are compatible, and as the Apricot uses 3.5inch discs while IBM uses 5.25inch discs some comms software and access to an IBM will be required for transferring any files.

The bigger brothers in the Apricot range have a wide variety of business software and languages available, and the F1e will run some of them, though not all.

Most of the more powerful programs, assuming they will actually run, require more Ram – at least 384K and often 512K, and upgrading an F1e is expensive. An extra 128K – bringing the spec up to 384K – costs £201.25. The 256K Ram board – making 512K in all – costs £339.25 and a 512K board costs only £50 less than the F1e itself.

Lotus 123, one of the most popular programs, is not yet available for the F1e, and when it is it is bound to require add-on memory.

MS-DOS, though it is one of the most widely accepted disc operating systems, can be daunting to the beginner. To help get around this, a 'front end' interface called *Activity* is supplied with the F1e, giving a graphics-based environment in which to use MS-DOS. A sort of poor man's Macintosh

After switch-on, the machine does a self test, and invites you to insert a disc or set the date and time. This step is not documented anywhere, and I could not persuade the machine that I wanted to change the date. After inserting a system disc, control normally passes to *Activity*, though inserting a non-system disc results in a large 'X' being shown, next to a number. This too is undocumented.

Once in *Activity*, discs are controlled and programs executed by selecting items with a cursor, driven around the screen with the numeric pad, or the mouse. In fact the *Activity* user interface is quite a good front end, allowing most MS-DOS actions to be carried out fairly easily.

In all five system discs are supplied, and a certain amount of disc swapping is required for most actions

After initially loading it, a special *Tutor* program is run, showing graphically the important features of *Activity* in a step by step process. When you have finished with *Tutor*, you find that none of the functions actually work, all producing a 'disc overlay not found' error. To the casual user with little technical knowledge,the program seems pointless at this stage. What the manual fails to tell you is that disc No2 is required to be inserted for any functions to be carried out

The F1e is a 'soft' machine. That is, it loads in any required operating system into Ram, and is also re-configurable. This is in contrast with machines like the Spectrum or C64 which have their operating systems and Basic language in Rom

There are several supplied utilities for changing fonts, program icons, keyboard layout, and various system parameters such as the printer port configuration. One disadvantage is that the BI operating system for MS-DOS, that controls the discs, screen and keyboard takes up 128K of the Ram, and other parts of the system take a fair bit of the rest, leaving only around 100K free for programs. Screen resolution is 640 × 256 in black and white, and 320 × 256 in 16 colours, and the graphic programs can be configured for one as the other, to suit your monitor.

The first of the supplied programs is ACT *Diary*. It is an electronic version of the desk diary, with a neat screen display, and fairly easy to use. Given the time it takes to load, and the fact you obviously have to stop what you're doing on the machine to load it, I think it would be easier to use the paper version, unless you have a particularly busy and complex lifestyle though the use of a mouse would speed things up.

Next up is ACT *Sketch*, a drawing program. This looks to be a very neat utility which, according to the manual, will work on keyboard or mouse. What it doesn't tell you is how to get it to use the keyboard – on loading without a mouse, you get the cursor in the middle of the screen, and that's it

You can't even quit the program, as that requires the cursor to be moved to the appropriate menu. Which you can't do of course!

For programmers there is GW Basic (which stands for Gee Whiz – honest), a standard Microsoft implementation. As ACT are pitching this machine straight at Acorn's BBC market, a useful utility *B-Tran* is supplied to convert BBC Basic



programs into GW Basic ones, though a better option would have been to have put a proper Beeb Basic interpreter on it, as the conversion process is slow as you have to load a separate program. The converter is sophisticated, turning the elegant structures of BBC Basic into the *Goto*-ridden lines of GW Basic. The manual is good by ACT standards and seems accurate and useful. A cable and software is supplied for up-loading programs directly from a BBC micro to the F1e.

Exactly which BBC commands and functions can be handled by the F1e and *B-Tran* are shown in Tables 1-3.

Throughout my time with the F1e, I battled with the documentation, either the lack of it or its inadequacies, and ACT *Communications* was another case in point. I could load it, and it immediately gave me an error message, returning to MS-DOS. I had neither instructions nor the time necessary to work out what was going on. I have since discovered that it is used for asynchronous up- and down-loading files between the F1e and other machines, with the F1e acting like a terminal. For that you will need an RS232 cable, not supplied by ACT.

Additionally two modem packages are available for the F1e. They both use the same modem but with different software. For £339.95 you get the modem and software to access BT Gold; for £454.25 you get the modem and an Apricot networking package.

As well as the review machine and its accompanying software, ACT supplied a few other discs of software that do not come as standard to show what the F1e can do.

The three utilities *SuperWriter*, *SuperPlanner* and *SuperCalc* are being bundled together for £109.25 specially for the F1e, although they are apparently not configured to work in 40-column mode. You will need a monitor.

With *SuperWriter*, the word processor, I found one snag immediately – the backspace key didn't, as the configuration was not complete for the machine. It was configured for the bigger Apricots, and some functions were assigned to the microscreen keys, which do not exist on the F1e.

Thus apart, it seems a powerful wordprocessor, with built in (British) spelling checker, and useful *Help* screens, though it is not a what-you-see-is-what-you-get program. It comes with its own font, which is thicker than the usual one, and with the long persistence monitor I was using it produces ghosting effects.

I had a brief look at *SuperCalc*, a spreadsheet, and *SuperPlanner*, an electronic notebook. These are in the same family as *SuperWriter*, and used to be bundled free with the bigger Apricots.

I also had Dr Logo, which uses the CP/M 86 operating system, rather than MS-DOS. Sensibly, the disc formats are similar, though you can only load programs on the correct operating system. For £34.50 – ACT's educational pack – you get Dr Logo, the CP/M 86 system disc and a tutorial disc. The documentation is up to the usual Apricot standards – the first instruction, how to load the program, is actually wrong! There is a separate booklet containing corrections

continued over the page

for the Logo manual, but that one didn't get a mention. It is a standard Logo, with the usual turtle graphics and list processing features

Conclusions

Generally the hardware performed well, with one exception – the keyboard. The more I used it, the worse it became, ignoring key presses It got so bad at one point that each key had to be pressed three times to register Hopefully this fault is limited to just my particular model

The main rivals in the price range are the BBC B Plus, the Amstrad CPC664 and the Sinclair QL

The F1e has a hardware spec that outperforms them all, with 256K Ram and a built-in disc drive, though the Amstrad does have a monitor

It runs the industry standard MS-DOS, compared to CP/M on the Amstrad, and the non-standard operating systems of the BBC and QL.

The software supplied, when configured properly for the F1e, is a neat and necessary front end to MS-DOS, though the manuals are all appalling and should be re-written completely

The F1e is also a proper 16-bit machine – another plus – and should have the technical support of a large, respected company, though actually tracking one down in the shops is very difficult at the present

In contrast with some of its competing machines the F1e is a proper business machine capable of use by smaller businesses that can't afford more up-market micros For the home market it loses out to the Amstrad and BBC in the games area, as there are no games at all to my knowledge

Compared to even the forthcoming Atari STs the basic F1e package is very keenly priced.

The biggest problem the machine faces is the high price of software and peripherals Becaces of the machine's lineage – being the lowest priced of a family of full-blown business micros – unless ACT is offering a special deal (such as with the three *Super* packages) all software and hardware additions appear to the seasoned home user to be very overpriced. Come back *Tasword*, all is forgiven.

When considering buying an F1e, the high price of additions to your micro must definitely be taken into account.

Micro *Apricot F1e* **Price** £686 **Accessories** *Monochrome monitor (9inch)* £230 *(12inch)* £287 50; *Colour monitor* £464 25, *Domestic TV modulator adaptor* £34 50, *Mouse* £109 25; *Ram memory expansion boards (128K)* £201 25 *(256K)* £339 25 *(512K)* £625 75, *MX10 Hard disc (10M)* £1,374 25, *Modem* £339 95-£454 25

GW Basic's interpreter offers 174 statements, commands and functions in its vocabulary, compared with 114 in BBC Basic Extra facilities include. circle and line drawing, random disc access, data handling, error trapping, event trapping, direct cursor control, program merging, directory management, variables exchange and keyboard reprogramming

Most BBC Basic statements and structures can be either used directly or are translated automatically for use under GW Basic.

Table 1 Identical BBC Basic/G W Basic statements and functions

Abs	*And*	*Asc*
Atn	*Auto*	*Chain*
Chr$	*Cos*	*Data*
Dim	*End*	*Exp*
For	*Gosub*	*Goto*
If/Then/Else	*Input*	*Int*
Left$	*Len*	*Let*
List	*Load*	*Mid$*
Mod	*New*	*Next*
Not	*On*	*Or*
Read	*Rem*	*Restore*
Return	*Right$*	*Sgn*
Sin	*Sqr*	*Step*
Stop	*Str$*	*Tab*
Tan	*Val*	

Table 2 BBC Basic constructs and OS Functions auto-translated by B-Tran

@%	*Acs*	*Asn*
Clg	*Close*	*Colour*
Def-Fn	*Def-Proc*	*Deg*
Delete	*Div*	*Draw*
EndProc	*Eof#*	*Ext#*
False	*Fn*	*GCol*
Get	*Get$*	*InKey*
InKey$	*Input#*	*InStr*
Ln	*Local*	*Log*
Mode	*Move*	*OpenIn*
OpenOut	*OpenUp*	*Pi*
Plot#	*Proc*	*Rad*
Renumber	*Repeat*	*Rnd*
Save	*Sound*	*Time*
Trace	*True*	*Until*
Vdu		

Table 3 Untranslatable BBC Basic constructs

AdVal	*Bput*	*Call*
Count	*EVal*	*HiMem*
List0	*LoMem*	*Opt*
Page	*Top*	*Usr*
Vdu4	*Vdu5*	*Vdu6*
Vdu14	*Vdu16*	*Vdu21*
Vdu23		

MAMA LLAMA MAMA LLAMA MAMA LLAMA MAMA LLAMA MAMA LLAMA

Minter Mania

Llamasoft Software 43 Mount Pleasant, Tadley Hants

The release of a Llamasoft game is always an occasion of universe-shattering celebration. Notorious for endless whackiness, graphic genius and inventive gameplay, Jeff Minter's games often stretch the 64 to its limits. The time was bound to come, though, when such is the great man's inventiveness that he would develop a game so far out that it was quite impossible for humans to play. This, Mama Llama, is it.

You control a family of three llamas and a telepathically directed killer droid. The droid is used to neutralise attacking baddies which supposedly come in all shapes and sizes.

Since you can apparently select which order you want to play through the sheets, Mama Llama is more than just a straightforward zapper. But in fact it's so devilishly complicated that it will take a three headed Vegan slime octopus to work it all out. I'm not even going to try to give this a rating for gameplay — if you want a real challenge, just go out and buy it.

Program Mama Llama 64 **Supplier** Llamasoft **Price** £7.50
Graphics ★★★★★★★★ **Sonics** ★★★★★★★★ **Gameplay** Glurk!

Commodore Horizons

MAMA LLAMA (Llamasoft) for Commodore 64. Another one from the Jeff Minter stable, and, if your brain works on the same wavelength as his, you will love this game.

Nobody could accuse Llamasoft of skimping on the instructions; there are "acres" of them and trying to absorb them all and loading the tape takes a very steady nerve.

The trouble is my brain refuses to accept all these instructions but nevertheless I got the tape programmed in the computer. What I saw looked good — the graphics were superb — but I did not understand any of it. I think I would rather try to remember word for word the complete works of William Shakespeare in Norwegian.

Sorry Jeff, this is not my game, but I am sure that your fans will adore it. If you do decide to buy it (don't let me put you off) you will need, as you will with all Llamasoft games, a joystick. That I did discover.

Thetford & Watton Times, Norwich

Llamasoft Jeff Minter's latest game is called **Mama Llama** and is one of the most colourful games I have ever seen. It has over a 100 different levels and involves both skillful play and strategy if it is to be mastered.

An excellent game that should do very well once the distributors latch onto it.

Computer Games & Systems Retailer

Camel Ya Faithful and knuckle down to a session of JEFF MINTER'S newest smashsroom—and a continuation of the Ungulant Saga, TONY TAKOUSHI reports...

JEFF MINTER's pilgrimage to Peru last October was the inspiration for his latest game called *Mama Llama*. It features a (surprise!) mother Llama and her two babies, all of whom are being attacked (in the best Minter tradition) by aliens.

The game follows the Minter style of a good shoot 'em up but uses smooth scrolling backdrops to good effect. The scrolling backdrops are a first in that they are very colourful (unlike Tony Crowther who sticks firmly to four background colours).

The overall aim is to survive and protect the baby llamas, who mimic their mothers every action so as she lopes and spits at the aliens so do they! You have many sectors to patrol with scanners within each section to help you locate any approaching nasties.

Following on from *Sheep in Space* and *Ancipital*, Minter has further evolved his gravity routines to allow incredible permutations on the alien attack patterns and on the movement of the llama. If you manage to clear a sector a warp gate will open to another sector, but you can choose to stay where you are a little longer.

Other sectors include the Inca City, Egyptian City, Space City, Rock City and Inca Homeworld — the gravity and viciousness of the aliens being suitably altered for each.

One of the most outstanding features of Minter games is his increasing ability to make the game feel good to play. When you pick up the joystick it feels true. Real gamers will know what I mean (the rest of you will just have to work at it).

At the time of review the game was only half complete and had to be reviewed as such due to print deadlines but even semi complete its quality stood out and I look forward to seeing the finished item.

Big K. London

A shoot 'em up with no bullets

ONCE upon a time computer games either derived from amusement arcades — which meant they consisted of shooting up aliens — or were adventures which involved reading a lot of text and reacting to it.

But now, how do you classify **Mama Llama** (Llamasoft, £7.50), Jeff Minter's latest opus for the Commodore 64?

It is an arcade game — of sorts. But it's not like other shoot 'em ups. There's none of the usual approach of "make one mistake and you're dead". You don't even work your way through waves in the time-honoured way.

Ever since his last speedy variations on Centipede — Laserzone and the like — Minter has been rethinking computer games. He even altered the playing area, as in Sheep In Space with its planetary surfaces at the top and bottom of the screen.

Minter, who coined the phrase "mega game" to describe his programs, understatedly calls his latest "rather unusual".

Mama Llama may be his masterpiece — a whacky surrealist piece of lateral programming. It's a shoot 'em up with no bullets. And the player can choose at what point he or she even enters the game, and can even move on when the going gets too tough — which happens when Rory the savage guinea pig makes his biting entrance.

You control a mother llama and her two children, protecting them from danger by means of a killdroid which removes obstacles by touching them.

Well animated with good baroque and roll musical accompaniment and excellent varied backgrounds for you to walk through, the game will especially appeal to fans of **Revenge Of The Mutant Camels** — a great game now also available for the Atari at £7.50.
Keyboard by John Walker

North Western Evening Mail, Barrow-In-Furness

LLAMA MIA

There comes a time where every reviewer has to own up — after reading through the many lines explaining the plot of *Mama LLama* several times, I am still baffled. This is what I've got so far: the plot, incomprehensible, involves simulated video games on a planet called Led Zepp IV (was that the one with *Stairway to Heaven* on it?); first part of game is a grid in which you choose what planet and how many aliens you want to fight. Part two sends you to the planet where you defend your Llama offspring from attack from various kinds of alien, one of which looks like a buffalo. However, there are things called Antigenesis devices and Retrogenesis devices which seem to be the Minter equivalents of smart bombs in that they reduce the number of aliens in certain ways. There appears to be all kinds of strategic elements to the way the game is played and it zaps like crazy. Beyond this, I don't dare to comment.
Program *Mama Llama* **Price** *£7.50* **Micro** *Commodore 64*

Popular Computing Weekly

Watch out — this guinea pig bites!

John Walker

MAMA LLAMA

From the wagging ears and tail and nodding heads and curtsies of llamas on the opening screen, Mama Llama may look like just another tame beast with her two babes. But not Jeff Minter behind it.

Rather, the plaster on one of the babe's cheek in the cover group shot is more an indication of this hazardous, fast paced trauma. And then there's the small but threatening KillDroid that hovers overhead to protect this cozy family. To be any good, however, you have to master it's inertia controlled movement — no easy feat if it's possible at all.

As usual, instructions are very involved even not considering the detailed account of what inspired Minter to produce his latest ungulates. Your choice of playing modes, difficulty, scenes, etc. are numerous since you pick from a grid. Minter calls it a "totally amorphous wave select system".

The harrowing pace of Mama Llama is daunting even in the beginner phase but substantial practice sharpens your skills. Meanwhile the changing scenery, situations and attackers keep the player occupied. **This is a toughie probably best conquered by dedicated Llamasoft fans rather than those just seeking an introduction to Minter's mind.**

Considering that the action is good and Mama and the player could become rather attached to Mama and her babies. All around it's all the well enough to keep the experts amused and glued to their joysticks.

Type of game Arcade **Fast loader** Novaload **Graphics** ★★★★
Sound ★★★ **Playability** ★★★ **CCI Rating** ★★★
Price £7.50 cassette

Commodore Computing

MAMA LLAMA MAMA LLAMA MAMA LLAMA MAMA LLAMA MAMA LLAMA

All sorted out

Try this simple filing program on Spectrum from the keyboard of ***Brian Lyle***

This program, which can maintain a file of record or program titles, birthdays or telephone numbers, was one of those programs born out of a typical 'I wonder if' exercise, when I was tinkering with the computer's ability to compare string values, and hence produce an alphabetical sequence.

From the simple compares, I was able to produce an array of records in alphabetical order, writing new records in their correct order and showing everything else up a bit to make room! The next step was obviously to be able to reverse the process, and delete unwanted records. Everything else just seemed to fall naturally into place.

The program is menu driven, and all routines flow through good old fashioned Goto statements. Desperately unstructured, it would probably give professional programmers nightmares, but it works – honest!

The options provided are as follows: Adding new records to the file (25 characters each), deleting unwanted records, displaying the file, page by page from the beginning, or starting with a given initial letter, and saving the program (and verifying) to tape, together with the updated file.

It would obviously be possible to add to and enhance the program adding such features as amending existing records, outputting the file to a printer, searcher for embedded words in a title, etc.

When the program is first entered, *Run* it to set the arrays. From then on, if you break into the program, restart with *Goto 530 Run*, or *Goto 1* will, of course, blank out the file. Whilst this is quite useful when opening a new file, it's somewhat frustrating if you do it by accident when you've just entered 200 records!

As written it will hold 300 records – increase this if you like by changing Lines 100, 110, 520 and 6035.

Program Notes

Lines No	
100-524	Dimension and set-up arrays
530-560	Menu display and selection
600-680	Input routine for adding records
6000-6070	Routine to insert record in correct alpha sequence and shuffle higher records up one place
7000-7560	Routine to delete a record, and close gap
8000-9010	Display file on screen, with option to display from chosen initial letter

```
90 PRINT AT 10,5;"Please wait a moment"
100 DIM n(300)
100 DIM a$(1,25)
110 DIM L$(300,25)
120 DIM z$(1,25)
130 DIM p$(1,25)
520 FOR z=1 TO 300
522 LET n(z)=z
523 NEXT z
529 REM *****MENU*****          SET CAPS LOCK AND KEYBOARD      BEEP
530 POKE 23658,8: POKE 23609,30. PAPER 5: BORDER 1: CLS
531 CLS   PRINT 01; B.K LYLE - 1984": PRINT AT 6,10;"MAIN MENU";AT 7,10;"----
----": PRINT : PRINT : PRINT AT 10,5;"Press  1  to add a Record";AT 12,3;"Press
 2  to list";AT 14,3,"Press  3  to delete a record";AT 16,3;"Press  4  to save
the file ": PAUSE 0
533 IF INKEY$<>"s" AND INKEY$<>"S" AND INKEY$<>"a" AND INKEY$<>"l" AND INKEY$<>
"A" AND INKEY$<>"L" AND INKEY$<>"d" AND INKEY$<>"D" THEN  GO TO 531
534 IF INKEY$="s" OR INKEY$="S" THEN  CLS : PRINT AT 15,0;"Load a blank tape,
                  -then press any key". PAUSE 0: CLS : SAVE "FILE" LINE 529:
CLS : PRINT AT 10,0;"Now rewind the tape and VERIFY": VERIFY "FILE": BEEP 2,1: G
O TO 529
540 IF INKEY$="a" OR INKEY$="A" THEN  GO TO 600
550 IF INKEY$="l" OR INKEY$="L" THEN  GO TO 8000
560 IF INKEY$="D" THEN  GO TO 7000
600 REM ***input new record***
601 CLS : INPUT "Enter Title Of Program ***(blank for menu)";a$(1)
602 IF a$(1)="                         " THEN  GO TO 530
620 LET seq=1
624 IF t$(1)="                         " THEN  LET t$(1)=a$(1): CLS : PRINT a$(
1);" added": PAUSE 100. GO TO 600
625 IF a$(1)<t$(1) THEN  LET seq=0  GO TO 6000
627 IF a$(1)=t$(seq) THEN  CLS : PRINT "****RECORD ALREADY ON FILE:      - Ne
"seq: PRINT : PRINT : PRINT : PRINT "Press any key to continue": LET seq=1  PA
USE 0: GO TO 600
630 IF a$(1)>t$(seq) AND a$(1)>=t$(seq+1) AND t$(seq+1)<>"
    " THEN  LET seq=seq+1: GO TO 529
670 IF a$(1)>t$(seq) AND a$(1)<t$(seq+1) THEN  GO TO 6000
680 IF t$(seq+1)="                         " THEN  LET t$(seq+1)=a$(1): CLS : P
RINT a$(1);" added": LET seq=1: PAUSE 100: GO TO 600
6000 REM INPUT SHUFFLE
6010 LET z$(1)=t$(seq+1): LET line=n(seq+1)
6030 LET p$(1)=t$(seq+2)
6040 LET t$(seq+2)=z$(1)
6045 IF p$(1)="                         " THEN  LET t$(line)=a$(1): CLS : PRINT
a$(1);" added": PAUSE 100: LET seq=1: LET line=0  GO TO 600
6050 LET z$(1)=p$(1)
6060 LET seq=seq+1
6070 GO TO 6030
7000 REM ***DELETE ROUTINE***
7001 CLS : PRINT AT 0,0;"PLEASE ENTER THE SEQUENCE NO     OF THE RECORD TO BE DE
LETED"
7010 INPUT ;I$
7011 IF I$<"0" OR I$>"300" THEN  GO TO 7000
7012 LET D=VAL I$
7020 LET DEL=1
7035 IF T$(DEL)="                         " THEN  CLS : PRINT AT 10,0;"NO RECORD
 ON FILE FOR INPUT NO  ";D: PRINT : PRINT : PRINT : PRINT "Press any key to cont
inue ": PAUSE 0: GO TO 530
7036 IF N(DEL)=D THEN  GO TO 7500
7040 LET DEL=DEL+1: GO TO 7030
7500 CLS : PRINT AT 0,0,"INPUT NO. ";D;" IS": PRINT T$(DEL): PRINT : PRINT : PRI
NT : PRINT " DO YOU WISH IT DELETE ( Y/N )": PAUSE 0
7510 IF INKEY$<>"Y" AND INKEY$<>"y" AND INKEY$<>"N" AND INKEY$<>"n" THEN  GO TO
7500
7520 IF INKEY$="N" OR INKEY$="n" THEN  GO TO 530
7530 IF INKEY$="y" OR INKEY$="Y" THEN  CLS
7540 LET t$(del)=t$(del+1): PRINT AT 10,10;"PLEASE WAIT"
7550 IF T$(DEL)="                         " THEN  PRINT AT 10,0;"RECORD NO. ";D;
" DELETED": PAUSE 100  GO TO 530
7560 LET DEL=DEL+1: GO TO 7540
8000 CLS : PRINT "No.   Title of Program        "
8010 PRINT "________________________________"
8020 LET page=1
8030 FOR x=3 TO 18
8035 IF page>300 THEN  PAUSE 300. GO TO 529
8040 PRINT AT x,0;n(page);AT x,4;t$(page)
8050 LET page=page+1: NEXT x
8060 PRINT AT 20,0;"Press  1  for next page,  0  for menu, or  I  to select a le
tter": PAUSE 0
8065 IF INKEY$<>"0" AND INKEY$<>"1" AND INKEY$<>"I" AND INKEY$<>"i" THEN  GO TO
8060
8066 IF INKEY$="i" OR INKEY$="I" THEN  GO TO 9000
8070 IF INKEY$="0" THEN  GO TO 530
8080 IF INKEY$="1" THEN  FOR x=3 TO 18
8100 PRINT AT x,0;"                                "
8110 NEXT x
8120 GO TO 8030
9000 CLS . POKE 23658,8: PRINT AT 10,0;"PLEASE TYPE INITIAL LETTER BELOW": INPUT
 I$
9002 LET disp=1
9005 IF t$(disp)( TO 1)>=I$ THEN  LET page=disp: CLS : PRINT "No.   Title of Pro
gram  ": PRINT "________________________________": GO TO 8030
9008 IF t$(disp)="                         " THEN  CLS : PRINT AT 10,0;"NO FURTH
ER RECORDS ON FILE": PAUSE 150: GO TO 530
9010 LET disp=disp+1: GO TO 9005
```

Point by point

A logarithmic graph drawing program for the QL written by ***James Cunningham***

The purpose of this program is to plot two variables whose graph would be a curve under normal circumstances. By using log-grids they can be plotted as a straight line type graph and shown if they obey a law.

The initial display gives a brief run-down on the use of the two log (base 10) grids available. The progam is greatly simplified by the *Scale* command.

Now to revise one or two points before describing the main sections of the program.

Each cycle of the vertical axis (max four for clarity) represents log10(a) where 1 < a < 10 * 10 ^ x. If a=1 then log10(a)+0; if a=10 then log10(a)=1. All 'a' values must be +ve. If a is (eg) two then log10(20) is log10(a)+1. The '1' is referred to as *comp* in program.

The Proc *lcalc* sorts the range of *x* and *y*, what is max and what is min. As neither *x* nor *y* can be zero (ie, you cannot have a log of zero), adjustment is made. The *comp* routine adjusts *xmin,ymin* so that they are in the first cycle (number between 1 and 10 therefore log between 0 and 1).

The range of *comps* is used to establish the scale. For *slgrid* the x-axis is decimal, not log. Info2 is the *slgrid* Proc and contains a routine to fit the range of *x* of the program into the actual *x* scale length.

The following sets of values will introduce the use of the program.

a) use (1) log-log grid. F = RI ^ n

X	1.4	4.7	8.8	9.1	11.8	13.1
Y	49	562	1158	2070	3136	1850

b) use (2) semi-log grid. y = ab ^ x

X	0.7	1.4	2.1	2.8	3.7	4.3
Y	18.4	46.1	111	306	858	4290

c) use (2) semi-log grid. y = as ^ bx

X	−1.2	0.38	1.2	2.8	3.4	4.2	5.3
Y	9.3	22.8	34.8	71.2	117	181	332

d) use (2) semi log grid. v = Ve ^ t/b

X	10.4	21.8	37.8	43.6	55.7	72
Y	883	347	90	55.5	18.6	5.2

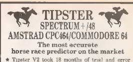
The program allows the 'x' and 'y' to be changed to other letters as required. The semi-log routine could probably be adapted to plot amplifier gain against frequency.

```
100 REMark ***LOGARITHMIC GRAPHS***
110 REMark *** BY J CUNNINGHAM ***
120 REMark *** SUITABLE FOR T V ***
130 REMark *** MONITOR WINDOWS ***
140 REMark ** REQUIRE TO BE WORLD *
150 REMark ** FULL 80 DRAWING MODE.*
160 REMark
170 REMark
180 REMark
190 MODE 8 : INK 2:PAPER 0:CLS:CLS 0
200 CSIZE 3,1:AT 0,1:PRINT LOG-LOG and SEMI-LOG GRAPHS
210 CSIZE 2,1:AT 2,2:PRINT 'program to plot graphs of the form'
220 AT 4,2:INK 2:PRINT (1) LOG-LOG :AT 4,10 :INK 7:PRINT Y ;:INK 2:PRINT " = a";:
    INK 7:PRINT x ;:INK 2:PRINT "^
230 AT 6,2:INK 2:PRINT (2)SEMI-LOG ;:INK 7:PRINT Y ;:INK 2:PRINT "ab" ;:INK 7;
    PRINT x ;:INK 2 PRINT OR ;:INK 7:PRINT Y ;:INK 2:PRINT "ae"b ;:INK 7:PRINT x ;
240 INK 2:PRINT OR ;:INK 7:PRINT ;:INK 2:PRINT /b ;:INK 7
250 CSIZE 1,1: AT 8,2:PRINT The variables to ... the given readings
260 PRINT\\, press any key to continue'
270 a$=INKEY$(-1)
280 CLS:CLS 0:DIM x(30),y(30):CSIZE 1,0
290 INPUT "Do any stab be changed? For Y" for other letters?(Y/N)";l$
300 IF l$=="y" THEN change
310 IF l$=="n" THEN
320 x$="x"
330 y$="y"
340 END IF
350 PRINT
360 PRINT"Input (1)llgrid or (2)slgrid"
370 INPUT;f:IF f<1 OR f>2 THEN GO TO 360:f=INT(f)
380 INPUT; Input number of readings ";n
390 PRINT INPUT ";x$; 1 ;:INPUT; = ";x(1);
400 PRINT INPUT ";y$; 1 ;:INPUT; = ;y(1)
410 PRINT INPUT ";x$;2;":INPUT; = ";x(2);
420 PRINT INPUT ";y$;2;":INPUT; = ";y(2)
430 IF y(2)>y(1) THEN ymax=y(2):ymin=y(1)
440 IF y(1)>y(2) THEN ymax=y(1):ymin=y(2)
450 IF x(2)>x(1) THEN xmax=x(2):xmin=x(1)
460 IF x(1)>x(2) THEN xmax=x(1):xmin=x(2)
470 IF x(1)=x(2) THEN PRINT\\, x(1)=x(2) ; will give a gradient of infinity :STOP
480 ymax=ABS(ymax):ymin=ABS(ymin):y(1)=ABS(y(1)):y(2)=ABS(y(2))
490 IF ymin=0 THEN : ymin=ymin+1:ymax=ymax+1:END IF
500 nmax=n-1
510 IF f=1 THEN
520 lcalc1
530 llgrid
540 info1 nmax
550 END IF
560 IF f=2 THEN
570 lcalc2
580 slgrid
590 info2 nmax
600 END IF
610 llgraphs
620 STOP
630 DEFine PROCedure lcalc1
640 ymax=ABS(ymax):xmin=ABS(xmin):x(1)=ABS(x(1)):x(2)=ABS(x(2))
650 IF xmin=0 THEN xmax=xmax+1:xmin=xmin+1:END IF
660 n=-10
670 REPeat loop
680 n=n+1
690 IF LOG10(ymin)>=n AND LOG10(ymin)<n+1 THEN comp=n
700 IF LOG10(xmin)>=n AND LOG10(xmin)<n+1 THEN comp2=n
710 IF LOG10(ymax)>=n AND LOG10(ymax)<n+1 THEN comp3=n
720 IF LOG10(xmax)>=n AND LOG10(xmax)<n+1 THEN comp4=n
730 IF n=10 THEN EXIT loop
740 END REPeat loop
750 a=comp3-comp+1
760 ab=INT(1.5*a)
770 END DEFine
780 DEFine PROCedure lcalc2
790 n=-10
800 REPeat loop
810 n=n+1
820 IF LOG10(ymin)>=n AND LOG10(ymin)<n+1 THEN comp=n
830 IF LOG10(ymax)>=n AND LOG10(ymax)<n+1 THEN comp3=n
840 IF n=10 THEN EXIT loop
850 END REPeat loop
860 a=comp3-comp+1
870 IF xmin>=0 THEN xrange=xmax
880 IF xmin<0 THEN xrange=xmax-xmin
890 const=1:a=1
900 REPeat loop
910 m=m*2
920 IF xrange>=m AND xrange<=m*1.6 THEN scall=const/m*.32
930 IF m>32 THEN EXIT loop
940 END REPeat loop
950 END DEFine
960 DEFine PROCedure info2 (nmax)
970 l=1
980 REPeat loop
990 l=l+1
1000 PRINT\\, INPUT ";x$;l";:INPUT\\, = ";x(l);
1010 PRINT\\, INPUT ";y$;l ;INPUT\\, = ";y(l):y(l)=ABS(y(l))
1020 IF x(l)<=xmin OR x(l)>xmax THEN GO TO 1000
1030 IF ABS(y(l))<=ymin OR ABS(y(l))>ymax THEN GO TO 1010
1040 LINE x(l-1)+const,LOG10(y(l-1))-comp TO x(l)+const,LOG10(y(l))-comp
1050 IF l=nmax THEN EXIT loop
1060 END REPeat loop
1070 PAUSE 20: PRINT\\,      ;x$;l+1;" = ";x(l),:PRINT\\,'      ;y$;l+1; = y(l)
1080 PAUSE 20: LINE x(l)+const,LOG10(y(l))-comp TO x(l)+const,LOG10(y(l))-comp
1090 lyf=(LOG10(y(l))-LOG10(y(1)))/(x(l)-x(1))
1100 END DEFine
1110 DEFine PROCedure info1 (nmax)
1120 l=1
1130 REPeat loop
1140 l=l+1
1150 PRINT\\, INPUT ";x$;l";:INPUT\\, = ";x(l),:PRINT\\, INPUT ";y$;l";
     INPUT\\, = ";y(l):x(l)=ABS(x(l)):y(l)=ABS(y(l))
1160 IF ABS(x(l))>xmax OR ABS(x(l))<xmin THEN GO TO 1150
1170 IF ABS(y(l))>ymax OR ABS(y(l))<ymin THEN GO TO 1150
1180 LINE LOG10( x(l-1))-comp2,LOG10(y(l-1))-comp TO LOG10( x(l))-comp2,LOG10(y(l))-comp
1190 IF l=nmax THEN EXIT loop
1200 END REPeat loop
1210 PAUSE 40: PRINT\\,      ;x$;l+1;" = ";x(l),:PRINT\\,      ;y$;l+1; = ;y(l)
1220 PAUSE 20: LINE LOG10( x(l))-comp2,LOG10(y(l))-comp
     TO LOG10( x(l))-comp2,LOG10(y(l))-comp
1230 lydx=(LOG10(y(l))-LOG10(y(1)))/(LOG10(x(l))-LOG10(x(1)))
```

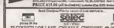
```
1240 END DEFine
1250 DEFine PROCedure slgrid
1260 allo=0
1270 IF asin(0 THEN allo=asin+cmet
1280 allo2=allo-1
1290 ah=1.5*a+2lo
1300 WDAT 4:SCALE a,allo2,0:PAPER 0
1310 LINE allo,a TO allo,0 TO ah,0 TO ah,a TO allo,a
1320 FOR b=allo TO ah STEP 1:LINE b,0 TO b,a:NEXT b
1330 FOR c=0 TO a-1
1340 FOR h=2 TO 10:LINE allo,LOG10(h)+c TO ah,LOG10(h)+c:NEXT h
1350 NEXT c
1360 END DEFine
1370 DEFine PROCedure llgrid
1380 ah=INT(1.5*a)
1390 WDAT 4:SCALE a,-2,0:PAPER 0
1400 LINE 0,a TO 0,0 TO ah,0 TO ah,a
1410 FOR c=0 TO ah-1
1420 FOR b=2 TO 10:LINE LOG10(b)+c,0 TO LOG10(b)+c,a:NEXT b
1430 NEXT c
1440 FOR d=0 TO a
1450 FOR b=2 TO 10:LINE 0,LOG10(b)+d TO ah,LOG10(b)+d:NEXT b
1460 NEXT d
1470 END DEFine
1480 DEFine PROCedure linequest
1490 PAUSE 20:CLS#0
1500 INPUT#0,"Is the graph close to a straight line ?(Y/N)  ";ansd$
1510 IF ansd$=="y" AND t=1 THEN grad1
1520 IF ansd$=="y" AND t=2 THEN grad2
1530 IF ansd$=="n" THEN PRINT#0,"Sorry no THING installed for bent line graphs"
1540 END DEFine
1550 DEFine PROCedure grad1
1560 t=1ydif/bxdif
1570 $a=LOG10(y(1))-(b*LOG10(x(1)))
1580 a=10^$a
1590 b=INT(b*1000+.5)/1000:a=INT(a*1000+.5)/1000
1600 PRINT#0,"CAN IT : ";y$;" = ";a;" ";x$;"^";b
1610 END DEFine
1620 DEFine PROCedure grad2
1630 PRINT#0,"Which formula ? (a) ";y$;"=ab^";x$;" OR (b) ";y$;"=ae^b";x$;" OR (c) ";y$
  ;"=ae^";x$;"/b"
1640 INPUT#0,"(a/b/c) ";form$
1650 IF form$=="a" THEN
1660 lb=lydif/xdif
1670 b=10^lb
1680 a1=y(1)/b^(x(1))
1690 a2=y(2)/b^(x(2))
1700 a=(a1+a2)/2
1710 b=INT(b*100+.5)/100
1720 a=INT(a*100+.5)/100
1730 CLS#0
1740 PRINT#0,"CAN IT : ";y$;" = ";a;" ";b;"^";x$
1750 END IF
1760 xdif=xdif*LOG10(EXP(1))
1770 IF form$=="b" THEN
1780 b=lydif/xdif
1790 a1=y(1)/(EXP(b*x(1)))
1800 a2=y(2)/(EXP(b*x(2)))
1810 a=(a1+a2)/2
1820 b=INT(b*100+.5)/100
1830 a=INT(a*1000+.5)/1000
1840 CLS#0
1850 PRINT#0,"CAN IT : ";y$;" = ";a;" e^";b;x$
1860 END IF
1870 IF form$=="c" THEN
1880 b=xdif/lydif
1890 a1=y(1)/(EXP(x(1)/b))
1900 a2=y(2)/(EXP(x(2)/b))
1910 a=(a1+a2)/2
1920 b=INT(b*1000+.5)/1000
1930 a=INT(a*1000+.5)/1000
1940 CLS#0
1950 PRINT#0,"CAN BE : ";y$;" = ";a;" e^";x$;"/";b
1960 END DEFine
1970 DEFine PROCedure change
1980 INPUT "Input new letter for X ";x$
1990 INPUT "Input new letter for Y ";y$
2000 END DEFine
```


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Flying the flag

Chris Cattanach unravels the mysteries of the status register

Whereas the accumulator, the x and the y registers are well known to machine code enthusiasts, having addresses at 780, 781 and 782 respectively, the whereabouts of the Status Register is shrouded in mystery. This is rather strange, as references are constantly made to the flags of the status register in machine code programs. The values of these flags change according to the conditions resulting from each operation.

The object of this program is to depict the seven flags of the eight bit status register, represented by the letters shown as follows, and to show whether the various flags are set or not. The register thus displayed on the screen, is linked directly to the function of the real status register (address 783), whose actions are illustrated by *Running* several consecutive short machine code programs.

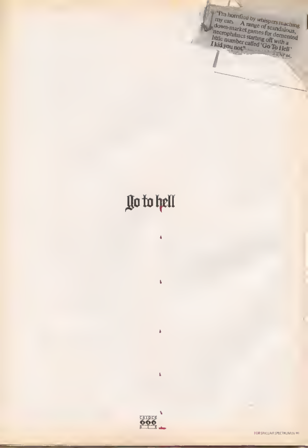
Each time the space bar is pressed, a *Sys* command runs one of these programs, (which is also shown in mnemonic form), to perform a simple mathematical operation, which changes the value of the status register at 783. Thus with a negative result, the *N* flag is set, with a zero result the *Z* flag is set, and if a carry takes place the carry flag *C* is set.

Once the actions of the register are understood, one can make use of them in a program. For instance, if the *N* flag is set, one could make a condition dependent upon this fact by, for example,

10 *If Peek (783) and 128 = 128 Then 20*
20 *Print "Value is negative"*

The actions of the register are mentioned in the C-64 Programmer's Reference Guide, but the situation of this register is not made clear

```
0 REM"C64 STATUS REGISTER"
1 PRINT"C64 STATUS REGISTER (C.J.CATTANACH)"
2 POKE53281.7 PRINT"PRESS SPACE BAR
  TO CONTINUE"
3 GETC$ IFC$=""THEN3
4 PRINTCHR$(147)
7 N1=0 N2=0 N3=0 N4=0 N5=0 N6=0 N7=0 N8=0
10 FORN=49152TO49163
11 READL POKEN,L
12 NEXT
20 PRINT"%PROGRAM"
21 PRINT"%CLC" PRINT"%LDA #$01"
22 PRINT"%SBC #$01 (WITH BORROW )"
23 PRINT"%RTS"
24 SYS49152 GOSUB79 PRINT"%(RESULT
   NEGATIVE  N=1)" GOSUB300
25 PRINTCHR$(147),"%PROGRAM"
26 PRINT"%CLC" PRINT"%LDA #$01"
27 PRINT"%SBC #$FF  (WITH BORROW )"
28 PRINT"%RTS" POKE49157,255
29 SYS49152 GOSUB79 PRINT"%(RESULT
   POSITIVE N=0)" GOSUB300
30 PRINTCHR$(147),"%PROGRAM"
31 PRINT"%CLC"
32 PRINT"%LDA #$01"
34 PRINT"%ADC #$FF   (WITH CARRY)"
35 PRINT"%RTS" POKE49156,105 POKE49157 255
36 SYS49152 GOSUB79 PRINT"%(256
   CARRIED  C=1)"
37 PRINT"%(RESULT ZERO  Z=0)" GOSUB300
38 PRINTCHR$(147),"%PROGRAM"
39 PRINT"%CLC" PRINT"%LDA #$00"
40 PRINT"%ADC #$FF  (WITH CARRY)"
41 PRINT"%RTS" POKE49154,0
42 SYS49152 GOSUB79 PRINT"%(RESULT
   NEGATIVE  N=1)" GOSUB300
44 PRINTCHR$(147) "%PROGRAM"
45 PRINT"%SEI"
46 PRINT"%RTS" POKE49152,120 POKE49153,96
47 SYS49152 GOSUB79 PRINT"%(INTERRUPT
   BIT I SET)" GOSUB300
48 PRINTCHR$(147),"%PROGRAM"
49 PRINT"%CLI"
50 PRINT"%RTS" POKE49152,88
51 SYS49152 GOSUB79 PRINT"%(INTURRUPT
   BIT I CLEARED)"
77 GOSUB300 RESTORE GOTO4
78 STOP
79 N1=0:N2=0 N3=0 N4=0 N5=0 N6=0 N7=0 N8=0
80 P=PEEK(783) PS=P
81 IFP/128=>1THEN91
82 IFP/64=>1THEN92
83 IFP/32=>1THEN93
84 IFP/16=>1THEN94
85 IFP/8=>1THEN95
86 IFP/4=>1THEN96
87 IFP/2=>1THEN97
88 IFP=1THEN98
89 GOTO99
91 N8=1 P=P-128 GOTO81
92 N7=1 P=P-64 GOTO81
93 N6=1 P=P-32 GOTO81
94 N5=1 P=P-16 GOTO81
95 N4=1 P=P-8 GOTO81
96 N3=1 P=P-4 GOTO81
97 N2=1 P=P-2 GOTO81
98 N1=1 P=PS
99 PRINT"%%STATUS REGISTER (783)"
101 P=PS PRINT"%";TAB(1);"N";TAB(4);"V",
    TAB(10),"B",TAB(13),"D",TAB(16);"I",
102 PRINTTAB(19) "Z",TAB(22) "C"
110 PRINTN8 N7 N6,N5,N4,N3,
112 PRINTN2.N1
115 PRINT"%%ACCUM.=",PEEK(780);",
    AND REG 783 CONTAINS";PEEK(783)
116 RETURN
200 DATA24,169,1,234 233,1,96,
    234,234 234,234,234
300 GETG$ IFG$=""THEN300
301 RETURN
```


"I'm horrified by whispers reaching my ears. A range of scandalous, down-market games for demented necrophiliacs starting off with a little number called 'Go To Hell' I kid you not"
Go to hell
666
FOR SINCLAIR SPECTRUM

Amstrad

Memories are made of this

Find out how characters are stored in memory with this m/c program by ***R G Bennett***

Although this program could perhaps be classed as a novelty program, there are features which could be of academic interest to some readers. Appendix III of the Amstrad handbook shows pictures depicting those characters with ASCII codes from 32 to 255 decimal, and shows them on an 8 × 8 grid. This grid is called the character matrix, and is stored in lower Rom as the 8 bytes represented by the 8 rows, or lines, of the matrix. Each byte is a number between 0 and 255 decimal, which is stored as the binary bit pattern which represents that number. The convention is that when a bit is 'one' it is said to be set, and when the bit is 'zero' it is reset. You can see quite clearly from Appendix III that it is the pattern of set bits in each byte which make up the whole character.

When you have the program up and running you are requested to press a key, with or without *Shift*. You could even press the *Enter* key at this stage if you wished. The character represented by the keypress is then shown on the screen in a much enlarged form, followed by the binary, hexadecimal, and decimal representation of each byte of the matrix. You should have no difficulty in matching up the binary pattern on the screen with the pictures in Appendix III. After seeing the result of your first keypress, a second one will take you back to the start of the program, but pressing *Enter* here will stop the program.

Regarding the actual program, in order to gain access to a character matrix, the lower Rom has to be 'turned on' first, and turned back off again when the matrix has been found. When printing the enlarged character each of the 8 bits of the byte are checked in turn. If the bit is set then a solid square is printed, and if reset, a space is printed. Thus the solid squares pick out the shape of the character. The same method is used to print the binary representation of the character, but this time a 'one' replaces the solid square, and a zero is printed in place of the space.

Program notes

The following routines are called from within the program, with the addresses given in hexadecimal.

BC0E	– sets the computer mode. Register A holds the mode. AF,BC,DE,HL corrupted
BB5A	– print the character in register A to the screen, nothing corrupted but control characters are obeyed.
BB18	– wait for a keypress, code returned in register A with carry set nothing corrupted
B906	– enable the lower Rom
B909	– disable the lower Rom
BB75	– set the current cursor position, ie, the next print position register H holds the column and register L the line position
BBA5	– puts in the HL pair the start address for the matrix-character in A

The only control code used in the program was in the *Text*, this was control code 31 which is the same as a *Print At* instruction. This is followed by a number for the column, and then the line number to printed to. Most of the control codes are ideal for embedding in message printing loops.

Once you have successfully generated the code by the Basic program, the actual machine code can be saved by *Save "name",B,30000,380,30000*. It can then be loaded back later on by either *Memory 29999 Load "name"*, or *Memory 29990 Run"*

```
10 MEMORY 29999
20 SUM =0
30 FOR X=&7530 TO &764D:READ H$
40 P=VAL("&"+H$)
50 POKE X,P
60 SUM =SUM +P
70 NEXT
80 IF SUM =29678 THEN END ELSE 90
90 CLS:PEN 3:LOCATE 10,10:PRINT"CHE
CKSUM ERROR":PRINT CHR$(7):END
100 DATA 3e,1,cd,e,bc,21,3a,76,6,e,
7e,cd,5a,bb,23,10,f9,cd,18,bb
110 DATA f5,cd,6,b9,f1,cd,a5,bb,11,
32,76,1,8,0,ed,b0,cd,9,b9,26
120 DATA 8,2e,8,22,48,76,cd,75,bb,d
d,21,32,76,e,8,6,8,dd,5e,0
130 DATA 3a,8f,cb,23,30,5,cd,5a,bb,
18,5,3e,20,cd,5a,bb,10,ee,3e,20
140 DATA cd,5a,bb,6,8,dd,5e,0,3e,31
,cb,23,30,5,cd,5a,bb,18,4,3d
150 DATA cd,5a,bb,10,ef,3e,20,cd,5a
,bb,dd,7e,0,5f,cd,1e,76,7b,e6,f
160 DATA cd,26,76,3e,20,cd,5a,bb,dd
,e5,cd,cf,75,dd,e1,2a,48,76,2c,22
170 DATA 48,76,cd,75,bb,dd,23,d,20,
a1,cd,18,bb,fe,d,c8,c3,30,75,dd
180 DATA 6e,0,26,0,dd,21,4a,76,11,6
4,0,cd,f,76,11,a,0,cd,f,76
190 DATA 7d,c6,30,dd,77,0,dd,23,dd,
36,0,ff,dd,21,4a,76,6,3,dd,7e
200 DATA 0,fe,30,20,4,dd,23,10,f5,f
e,ff,c8,cd,5a,bb,dd,23,dd,7e,0
210 DATA 10,f3,c9,af,ed,52,3c,30,fb
,19,c6,2f,dd,77,0,dd,23,c9,cb,3f
220 DATA cb,3f,cb,3f,cb,3f,c6,30,fe
,3a,38,2,c6,7,cd,5a,bb,c9,0,0
230 DATA 0,0,0,0,0,0,1f,f,1,50,52,4
5,53,53,20,41,20,4b,45,59
240 DATA 0,0,0,0,0,0
250 END
260 CLS:X=&7530
270 PRINT HEX$(X);
280 FOR N=0 TO 9
290 PRINT" ";
300 PRINT HEX$(PEEK(X+N));
310 NEXT
320 A$=INKEY$:IF A$=""THEN 320
330 PRINT CHR$(12)
340 X=X+10
350 GOTO 270
```

The Music Box

Rearranged

When, some time ago, Music Sales brought out their *Music Maker* software, complete with clip-on keyboard, my feeling was that they had produced a reasonable piece of software aimed essentially at the sort of market who might otherwise buy a small Casiotone or equivalent little electronic organ. Then, earlier this year, the company announced a whole range of apparently related software, much of which seemed to be directed at a more 'serious' market.

Well, I've recently had some time to play with the first of this range of products and, frankly, it's a little disappointing.

The package is called *Popular Classics* and is described as a 'Music Maker Playalong Album'. The only sense in which it could be called integrated software is with regard to the fact that it, like the original *Music Maker* package, uses the tacky plastic clip-on keyboard. I'm not quite sure who is expected to buy this software because, elegantly packaged as it is, it doesn't quite seem to have developed an identity of its own.

The software, on cassette or disc, allows you to hear one of 12 well-known classical themes arranged for the 64's three parts. *Tchaikovsky's Cappricio Italian* (sic), *Bizet's Toreador Song* and *Liszt's Hungarian Dance No 5* among them. You can hear these one at a time, or in a pre-programmed or self-programmed (Juke Box) sequence. You also get a choice of cartoon-style graphics which actually bear some relationship to the music.

Apart from this, there is a single key play mode which allows you to follow a piece one note at a time (using the graphic depiction of a musical keyboard), a rehearsal mode which shows you graphically which key to press in order to play the next note of the melody and a performance mode in which you just play the melody along with the backing.

Clearly, all this is designed primarily for education. The package is a sort of computerised 'play-in-a-day' book and, as such, it is well executed and quite cheerful to use. (You even get a music book with the melodies written down.) However, I'm not really sure how useful it actually is in teaching musical skills. The documentation is pretty basic and, by its very nature, the package itself is limited to teaching you to play along with 12 excerpts from out-of-copyright tunes rewritten for ease of use.

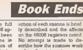
The most curious thing, perhaps, is the inclusion of a *Midi* facility. This allows the software to drive a synth so that the tunes will play through it. You can also use the rehearsal feature in *Midi* mode, although not, apparently, the performance feature. Quite who is meant to use the *Midi* facility is not clear although it is nice to know that *Midi* is being thought of by software producers.

I have to reserve judgment on the whole *Music Maker* project until I've seen some more software. At the moment, the most that can be said of it is that it may be quite a good way for an absolute beginner to enter the world of music.

Gary Herman

The Music Box is a weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2R 3LD.



Book *Creative Sound* **Price** £9.95 **Micro** BBC **Supplier** Acornsoft Betjeman House 104 Hills Road, Cambridge CB2 1LQ

This book has a solid pedigree David Ellis, a computer musician and journalist, and Chris Jordan, designer of the BBC sound software and the Music 500 As you might expect from such a team, they explore in considerable detail some of the sound and music-making possibilities of the Beeb

Topics include sound synthesis, playing the Qwerty keyboard in real time, computer compositions and CAMI (Computer Assisted Musical Instruction). The programs, many of them quite long, make full use of BBC Basic and machine code routines are used when necessary For this reason alone it's worth buying the programs, too.

Of special interest are the composition programs although many are geared to produce music with a mathematical base rather than an inspirational one – if you can do much better, however, let me know One produces a machine code patch which reduces the usual 50ms minimum note duration to 10ms

A raw newcomer to the world of computer music and sound synthesis may flounder in places but if you are at all interested in exploring music on the Beeb and the potential of the sound chip this book is a must.

Ian Waugh

Book *QL Technical Guide* **Micro** Sinclair QL **Price** £14.95 **Supplier** Sinclair Research Stanhope Road, Camberley, Surrey GU15 3PS.

The QL Technical Guide is billed as a complete technical guide to the QL which includes the full specification of the QDOS operating system. It has been available for some time in draft form for producers of software and hardware, but is now officially finished.

The Guide is certainly not a beginner's introduction to QDOS or Superbasic, but is aimed very directly at those with a commercial interest in the QL Description of the operating system itself and how it works is minimal the bulk of the Guide giving descriptions of how to use QDOS with the emphasis always on officially approved techniques Some interesting pointers to future QL developments are included. For example, Sinclair advise against direct manipulation of the screen Ram because the format may change Sinclair are known to be working on enhanced window capabilities

Most of the Guide consists of a reference description of the QDOS routines available to machine-code programs, traps and vectored routines in 68000/QDOS parlance. The action of each routine is briefly described and the affects on the 68008 registers noted No attempt is made to describe how the routines work or how they interact.

The last chapter in the Guide is all about doing business with Sinclair, who to approach if you have a program to sell, what sorts of contract are available, how Sinclair will market products bearing the Sinclair name, and so on. This chapter really sums up the Guide It is strictly for second-source producers of QL products and if this is you, then you will need the Guide If you simply want to learn more about the QL then I would advise that you get hold of a copy of Andy Pennell's *QDOS Companion*.

John Cochrane



The easy side

This week we have another of our special maps for you, courtesy of Andrew Hartley of Carnforth. Once again it is of a Spectrum game, *Gyron*, but I strongly advise at least Commodore and Amstrad owners to keep hold of it. Of course there are two sides to the game, the more difficult of which, Necropolis, has a Porsche as a prize for completion. For this reason, and also because as far as I kow no one has come near mapping Necropolis (or if they have they sensibly are keeping quiet), our map is of the 'easy' side, the Atrium. Anyway let's let Andrew do the talking. "*Gyron* from Firebird is professional, expertly written, and very fiendish in conception – it must be one of the toughest games ever. I've been hooked on it for some time now. Necropolis is brain numbingly complex and the point of frustration is soon reached but I have finished Atrium. The routes of the spheres do not change in Atrium, nor do they stop moving. Necropolis is made even more difficult by the fact that many routes are blocked by stationary spheres that only move at certain times. I think the Porsche is safe.

"On my map the triangles represent the towers as they are at the start, the large black arrow indicates the start, the smaller arrows the routes of the spheres. From the start the first problem is to get to the top left past the four oscillating spheres to the seven yellow towers all in a line. Shooting the backs of the four nearby ones will make them all point in the same direction – it seems to be unimportant here but has a significant effect close to the end of the maze – eight towers in the bottom right are impassable otherwise.

"From the top left the next stop is the top right area which is thick with towers. Two important techniques must be mastered here – using the spheres as shields to protect you from the tower blasts and travelling safely through the blind spot directly beneath the towers close to the trench wall.

"In the area bottom centre two spheres follow each other around an 'H' shaped trench. Navigating this had my nerves in shreds and using the spheres as shields is essential. The central tower of the H has to be shot first, then guide the hedroid between the two spheres and go round with them. You must go around the H one and a half times, with five towers to shoot, and without touching either sphere. If you survive this traumatic experience the last bit is a cinch.

"Salvation is reached at the cross shaped section of trench immediately below the start. On the right are three towers, two pointing in to a third. Shoot the one in the middle to reach the final screen representing the entrance to Necropolis."

I'm sure many readers will want me to thank you for that, Andrew.

Tony Kendle

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Study the table below and look at the column for the machine you have – these are the games you'll need to master. Send your high scores in on the form below making sure that your scores are authenticated by a responsible individual signing the form. Any score achieved using technical short-cuts – such as infinite lives Pokes – will not be accepted.

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the score to beat. Then, in September, the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

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Address

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Witness's signature

Tony Bridge's Adventure Corner



Atmospheric

Many moons ago, I was sent a tape for review – called *Funhouse*, it was from Pacific Software and has been written for the Spectrum and Amstrad. I spent a long time trying to get out of the very first location and then finally gave up as other adventures and other deadlines clamoured for attention. I've often said in this column that I wish software houses would send solutions, maps and so on with their programs – much as I love to play an adventure from the same stand point as other players, time is too pressing to spend long hours trying to progress through new games. This, too, incidentally, is why some of the hints you may read in this column may be a little off the mark – quite often, I don't have a chance to check them personally, so don't sue me!

Anyway, as so often happens a flash of inspiration (prompted, I have to admit, by reading the cassette inlay, which practically gives the solution to this first problem in the list of vocabulary – a good rule of adventuring being, read *all* the information) sent me back to try again, and lo and behold, I finally managed to crack it. Once past this first location, I found a fine adventure in a nicely designed character set, you are told that "a lifetime seems to have passed since their craft crashed into the old abandoned amusement park. They then invaded the town to hold all human life captive, but you escaped with one aim – to find and destroy their power source". Leaving aside all the unanswered questions that this introduction poses ("Is *all* human life present in this one town? Who are *They*?" and so on), the scene is thus nicely set in the eerie old funfair.

It's a pretty large one too, having some 130 locations, many of them illustrated with chunky colourful pictures (although written with *The Quill* – not mentioned anywhere, incidentally – it is pre-*Illustrator*). You'll find plenty of objects to use and puzzle over (and Examine everything!). The atmosphere, however, doesn't come so much from the graphics or location descriptions, which anyway are rather basic, but rather from the feeling of 'place'. That is, the fairground gives plenty of scope for creepy situations – unusual happenings in a mundane setting, a device used in some of the best horror stories. While the location descriptions may be terse, they often manage to convey something more than just where you are, for example, things seen in one location may sometimes be seen from another, and then you often get the impression that something is watching you from the shadows! And you are there alone, or almost.

Most of the problems, despite what I said of the opening sequence, are not horrendously difficult, but the adventure is pretty large, and it will take you some time to finish it. Although the screen layout is occasionally messy (commas at the start of lines, pictures scrolling half-way up the screen and so on), the game is good value at £3.99 for the Spectrum, and, rather strangely, £5.95 for the Amstrad. Details from Pacific Software, Pacific House, Buttermere Grove, Beechwood, Runcorn, Cheshire.

From a *Quill*'d (in the Spectrum version) adventure that reeks with atmosphere, to another that is unfortunately sterile and non-addictive. *Operation Nightingale* comes from Softly Softly (good name that!) and with the offer of a £100 prize. The story starts with you in your office, somewhere in a Government building. You are carrying a revolver. There's a small room nearby, which yields a bullet. Aha!, I thought, immediately typing Get Bullet, Load Revolver. Yes, you can see what's coming already, can't you? The Spectrum thought that I was asking it to load in a saved game! Oh well, back to the drawing board. On subsequent attempts I explored quite a bit of the adventure, as it's fairly open and easy to get around. *The Illustrator* has been used here, and the pictures are sometimes quite artistic, evoking memories of the Bauhaus school of the 1930's. Despite this, there is absolutely no atmosphere, and this is partly due to the minimal and uninspiring location descriptions, but mainly to the complete absence of involvement. You'll see this most in moving about the landscape, for example, in Leicester Square, you can go North to Soho, or South to Oxford Street.

Apart from the geographical nonsense in this state of affairs, there is no sense of being in the West End of London – you might just as well be completely alone in the middle of a desert, with a few cardboard building fronts scattered around (I suppose this could turn out to be the dread secret!)

"Atmosphere" is, of course, a subject for a whole book, but it can be evoked not only by a vivid location description, which anyway is missing here, but also by the sense of "place". While we are all intellectually aware of how an adventure works – by keeping tabs on where the player is in a large matrix of cells – nevertheless, an atmospheric program will fool the player into believing that he/she is actually wandering around a real landscape, where one location leads naturally into another: the suspension of disbelief, in other words. In *Operational Nightingale*, the mechanics of the adventure are only too painfully obvious, and this makes for a dull game.

With a prize of £100 at stake, you can be sure that the problems are going to be tough, and that Softly Softly didn't provide me with a solution or map, though a tape of a game saved at some early position would have come in handy for a review. Well, I couldn't be bothered to flog my way through the puzzles, but the prize is obviously worth going for.

So, if you are into puzzles with good reward at the end, maybe this is for you. Incidentally, the prize is only available until 26 August 1985, so be quick. Softly Softly, 36 Broadlands Road, Bromley, Kent BR1 5DE.

Another tape that I received some time ago was from Celtic Software – it's a smashing adventure, but I can't tell you about it until I find their address again! So, Celtic Software, please let me have your address, and then I can tell everybody about *Manor Madness*.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

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This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So if you have an Adventure you want reviewed, or if you are stuck in an Adventure you cannot progress any further write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.

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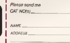
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Peek & Poke

Addicts guide

Douglas Irons of Maidstone, Kent, writes:

Q I have just read the complete Arcade Addicts Guide, and many of the pokes and cheats have been very useful, but how do you enter them into the program if the line starts with a zero? I know there is a poke statement for this, but I cannot find it in the hundreds of back issues I have got. I have enclosed a SAE so you can't get out of replying to me!

A The address you are looking for is 23756 If the header program contains a Line zero, it is not recognised, so cannot be edited If you *Poke 23756, n* (where *n* is an integer) then the Line zero will now be Line n, and can be edited in the normal way By the way, Douglas, I'm afraid a SAE doesn't improve your chances of getting an answer - I'm afraid I just get too many enquiries to answer individually

Main advantage

R Diamond of Chelmsford, Essex, writes

Q Can you explain how a microdrive and Interface would make a difference when using a database (as opposed to just using a cassette recorder) I knew that a microdrive can hold about 100K but as my Spectrum has only 48K Ram, I don't quite see the advantage.

A The main advantage is simply speed. Databases need information (a lot of it) to be available quickly Rewinding a cassette from end to end searching for the required information can take a long time, but any information can be retrieved from a microdrive in a few seconds

A microdrive allows for files of up to 88K, but only parts of the file are loaded into memory at any time, hence the apparent ability of fitting 100K into 48! Also the attachment of a second microdrive allows for much more data to be available without any decrease in speed

Book of instructions

Guillaume Philraudeau of London W8, writes

Q I have been the owner of a 48K Spectrum for two years now, and am starting to program in machine code. I have already written small programs, but I would like to buy a book on the subject.

What I want to understand are the 'Rotate' instructions (RRA, RLCA, RLC, etc), the 'bit', 'set' and 'res' instructions and the registers they use. Although I know what they do, I don't know how to use them.

Unfortunately, the books I've seen are either for the absolute beginner (which I'm not), or for the already proficient programmer, not my case either. Could you please help me find a book that would suit my requirements.

A I would suggest you try a recent Melbourne House publication, *Z-80 Reference Guide* written by Alan Tully, price £9 95 Their address is Castleyard House, Castleyard, Richmond, TW10 6TF

As a much less solitary alternative, have you tried contacting a local computer club or user group?

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Urban Upstart on Commodore 64. How do I stop sinking on the building site? Where is the airport? How can I get past the fire? Chris Collard 3 Rutland Road Oakham Leics

Tir Na Nog on Commodore 64. Any clues on how to get through the door marked N in TJR Falamh. Michael Bradley 111 West Avenue, Melton Mowbray Leics

The Golden Baton on Commodore 64. How do you get past the lizard man using the crystal and how do you get past the crab? T Lewis 97 Spencer Road Isleworth Middx

Sword of the Kings on Spectrum. How do I open the meteora gate? J Reaney 24 Prospecthill Road, Glasgow G42

Zim Salabim and Aztec Tomb on Commodore 64. Help a dad to stop the kids laughing. Zim stuck at dungeon. Aztec stuck in jungle. J McTighe 20 Ersby Road Middleton, Manchester M24

Hulk on Spectrum. Any hints whatsoever. Who is antman? How do I get the bio-gem? I am getting nowhere. Help! David Fox 8 Millbank Close High Green Sheffield S30

Eureka! on Spectrum (Part 2) Where is the golden eagle? What is in the catacombs? How do I cure leprosy? Keith Thorneycroft 64 Wivelsfield Road Balby Doncaster

Classic Adventure on Commodore 64 How do I get past the huge green snake and how do I get the nugget up the stairs. Richard Kittle 180 Station Road, Leigh-on-Sea Essex

Sphinx Adventure on Electron. I can't find the boat. I can't find the cheese or the mouse. How can I cross the trolls bridge? Andrew Powell 208 Hitchin Road Stotfold Hitchin Herts

Sherlock on Spectrum. I've shown Tricia clothes and taken Mrs Jones to Lestrade but I can't get Lestrade to accept that Jones killed Tricia. Colin Thompson 18 Windermere Road, Great Horton Bradford, W Yorks BD7 4RQ

Golden Apple on Spectrum Waht do you do with the parrot? What input is the computer waiting for? Richard Rodkin 28 Broom Close Stanley Co Durham DH9 0UU

Witch's Cauldron on Spectrum. How can I crush the snail's shells to put into the cauldron? Pamela Sollick 1 Evenlode Park, Abingdon, Oxon OX14 3SZ.

Pharaoh's Tomb and Greedy Gulch on ZX81 Tomb: Can't get back through the maze Gulch. Can't get back through the desert. George Payne 46 Ashdon Road, Bushey Watford, Herts WD2 2HX



DIARY

Event	Dates	Venue	Admission	Organisers
Computer Show	July 13 10.30am-5.30pm	Co-op Hall 106 Cowley Rd Oxford	60p	CJE/Northleach 04518 600
Computer Show	July 20 10.30am-5.30pm	Old Vic Hotel Lichfield Rd Wolverhampton	60p	CJE/Northleach 04518 600
Third Official Acorn User Exhibition	July 26 Trade 10.00am 1.00pm July 26 – 28	Barbican Centre London EC2	£3 adults £2 children	Computer Marketplace (Exhibitions) plc 01-930 1612
The Micro Trend 85	Aug 11	Burnley General Hospital	60p adults 30p children	Palace Computer Services 0888 53341
Personal Computer World Show	September 4-8	Olympia London	£3.00	Montbuild 01-486 1951

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4	(4)	Kissing Koussins	(English Software)	£6.99
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9	(9)	Beachead	(Access/US Gold)	£14.95
10	(8)	Smash Hits 3	(English Software)	£14.95

Bubblers:

F15 Strike Eagle	(Microprose/US Gold)	£14.95
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1	(1)	Revs	(Acornsoft)	£14.95
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Commodore 64

1	(2)	Way of the Exploding Fist	(Melbourne House)	£9.95
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3	(3)	Dambusters	(Sydney/US Gold)	£9.95
4	(4)	Shadowfire	(Denton/Beyond)	£9.99
5	(–)	View to a Kill	(Domark)	£10.99
6	(5)	Soft Aid	(Various Artists)	£4.99
7	(8)	Pitstop II	(Epyx/US Gold)	£9.95
8	(–)	Rocky Horror Show	(CRL)	£8.95
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Bubblers:

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Bubblers:

Tapper	(Sega/US Gold)	£7.95
Rocky Horror Show	(CRL)	£8.95

Figures compiled by Ram/C

Top Twenty

1	(1)	Elite *(BBC/Electron/C64)*	Firebird/Acornsoft
2	(3)	Way of the Exploding Fist *(C64)*	Melbourne House
3	(2)	Soft Aid *(Spectrum/C64)*	Various Artists
4	(4)	Jet Set Willy 2 *(Spectrum/C64)*	Software Projects
5	(6)	View to a Kill *(Spectrum/C64)*	Domark
6	(5)	Dambusters *(C64)*	Sydney/US Gold
7	(8)	Cauldron *(Spectrum/C64)*	Palace
8	(15)	Dun Darach *(Spectrum)*	Gargoyle Games
9	(–)	Spy vs Spy *(Spectrum/C64)*	First Star/Beyond
10	(10)	Alien 8 *(Spectrum/BBC/Amstrad)*	Ultimate
11	(11)	Shadowfire *(Spectrum/C64)*	Beyond
12	(7)	Knight Lore *(Spectrum/C64)*	Ultimate
13	(12)	Herbert's Dummy Run *(Spectrum/C64)*	Mikro-Gen
14	(13)	Revs *(BBC)*	Acornsoft
15	(14)	Nodes of Yesod *(Spectrum)*	Odin
16	(–)	Hypersports *(Spectrum)*	Imagine
17	(–)	Rocco *(Spectrum)*	Gremlie
18	(19)	Minder *(Spectrum/C64/MSX/Amstrad)*	DK Tronics
19	(17)	Spy Hunter *(Spectrum/C64)*	Sega/US Gold
20	(20)	Pitstop II *(C64)*	Epyx/US Gold

Figures compiled by Ram/C

Readers' Chart No 32

1	(2)	Elite (C64/BBC/Electron)	Firebird/Acornsoft
2	(1)	Soft Aid (Spectrum/C64)	Various Artists
3	(4)	Confusion (Spectrum/Amstrad)	Incentive
4	(3)	Knight Lore (Spectrum, BBC, Amstrad)	Ultimate
5	(6)	Gyron (Spectrum)	Firebird
6	(5)	Rocky Horror Show (Spectrum)	CRL
7	(–)	Shadowfire (Spectrum/C64)	Beyond
8	(8)	Minder (Spectrum/Amstrad)	DK Tronics
9	(5)	Alien 8 (Spectrum/BBC/Amstrad)	Ultimate
10=	(10)	Starion (Spectrum)	Melbourne House
=	(–)	Dun Darach (Spectrum)	Gargoyle

Winning phrase No 32 "No-good thief nicks urinal" from Karen Rolph of Heaton, Tyne-and-Wear who receives £25. Others who came close included "I can't think of one!" from S C Young of Garrowhill, Glasgow

Now voting on week 34 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Voting for Week 34 closes at 2pm on Wednesday July 17 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name ....

Address ....

....

....

My top 3: Voting Week 34

1. ....
2. ....
3. ....

My phrase is: ....

New Releases

DICE ROLL

Leisure Genius' *Cluedo* is a perfect example of just how to computerise a board game

Most of the screen is taken up with a representation of the board, with all the rooms marked on it Familiar territory this – how many childhoods were spent shuttling between the ballroom and the kitchen, or sneaking into the conservatory to use the secret passage?

The rest of the screen is used for status display for the particular player whose turn it is at the time. You get a menu of the various things you can do during a turn, highlight the one you want using the arrow keys, then hit enter Above the menu is a picture of the character – these are direct copies of the cards in the game

The options are of course those present in the board game – roll dice, look at clue cards, make accusations, and so on When you roll the dice, a large die actually appears on the screen and rolls to the middle of the board – you then move your counter however many squares it shows

There are also options in the game which control sound effects, how good your computer opponents are, and how quickly the game plays

You can have up to six people playing, any or all of whom can be computer controlled. Set up all six on auto pilot, choose the quickest speed, and watch them play

Each of the characters has their own theme tune, which is usually instantly recognisable and pretty apt – Reverend Peacock gets *Onward Christian Soldiers*, Miss Scarlett gets the theme from *Gone With The Wind*. I can't quite work out why Prof Plum gets what sounds remarkably like the 2001 theme tune, though. Perhaps he should be investigated. All the same, you still miss out on the real thing – computerised board games just aren't as much fun as rattling the dice in a chipped mug And the computer doesn't let you cheat either

Program *Cluedo*
Price *£9 95*
Micro *Spectrum*
Supplier *Leisure Genius*
3 Montagu Row
London W1H 1AB

INGENIOUS

Sentient Software – probably most famous for the well-received *Key to Time* adventure – has gone budget It has released a number of titles, at £2 99 (including *Key to Time*) with a Spectrum version on one side and a Commodore version on the other

The programs are mostly adventures in the traditional text-only style I looked at *Scoop*, since it features an intrepid reporter hunting for the scoop of the century, just like life on *Popular* in fact

Two criticisms to begin with. First the adventure is obviously *Quill*ed and yet no credit is given that I could see Secondly, the opening section has you waking up in a bedroom described as having 'floral wallpaper a woman's touch' – this is not only sexist and idiotic but if you are a woman playing the game immediately alienating and confusing You could easily think that 'you' were 'at your home' rather than that 'you' being a man, were at a woman's home which is the assumption made by the programmers Naff thinking all round

That said, the adventure is very ingenious and immediately compulsive The bedroom you wake up in is chock full of interesting objects to examine and packed with puzzles – I mean I've found the suit and shoes but it won't let me put them on, so at the moment I'm wandering around naked, stuck in the bedroom.

Why don't programmers realise that, particularly with adventures there is a sizeable minority of women who want to take part in the game but find it hard to identify with male heroes Don't they want to maximise their market and make as much money as possible?

Program *Scoop*
Price *£2 99*
Micro *Spectrum/C64*
Supplier *Sentient Software*
Branch House
18 Branch Road
Armley
Leeds
West Yorkshire

INDENTED

Silas is an unusual utility for the BBC What it does is reformat Basic listings to make them clearer and more elegant For example, *For Next* loops are indented and nested within one another Basic command words are highlighted and variables are always given a new line

Once loaded the system is inaugurated via a function key The reformatted listings can be printed out as normal and will appear in the *Silas* format with bold print replacing the colour highlighting

For those who do a lot of Basic programming this could be a very useful utility indeed – the manual is very helpful and clear

Program *Silas*
Price *£9 95*
Micro BBC
Supplier *Astral Software*
152 Melton Road
Stanton on the Wolds
Keyworth, Notts

GOTHIC

CRL's *Rocky Horror Show* game has now been released on the Amstrad. It looks exactly like the Spectrum version but has a decent sound track à la Commodore

The game was well reviewed for capturing the flavour of the original film surprisingly well – all the favourite characters are depicted, Brad Janet, Magenta, Eddie the Biker with bike, Rocky Horror, Columbia and Riff Raff.

The graphics though small are also well done with an authentically gothic house and weird characters

The music is very well arranged The opening credits give you a rendition of the Time Warp and throughout the game it recurs deviously arranged in three channels

The other nice touch is a facility to choose whether to be Brad of Janet – whoever you choose your will have been turned to stone The actual game is simple – get the pieces of the demedusa spell and take them to the main stage within a time limit The only problem is that it isn't all that difficult – I got about 75% of the way there first time

Still, that could well turn out to be an attraction for some people

Program *The Rocky Horror Show*
Price *£8 95*
Micro *Amstrad*
Supplier *CRL*
CRL House
9 Kings Yard
Carpenters Road
London
E15 2HD

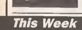
New Releases

DEVIOUS

Dun Darach, I raved about recently on the Spectrum and I'm pleased to see it in the charts Now the game has been converted to the Amstrad.

Like *Knight Lore* before it, *Dun Darach* shows that with the right programmers, it is possible to convert Spectrum games to the Amstrad and have them look exactly the same – except for the fact that you don't have any colour clash problems Thus *Dun Darach* on the Amstrad is even better looking than it was on the Spectrum.

The changes are mainly in the background – there are a few more colours here and there, a muddy brown for the city walls a few more highlights on things like street names and so on. Other than that it's the same devious, witty, stomping boot boy, Celtic romp as the original Another one of those games that is an essential purchase for Amstrad owners



Program *Dun Darach*
Price *£9 95*
Micro *Amstrad*
Supplies *Gargoyle Games*
74 King Street
Dudley
West Midlands
DY2 8QB

BUMP & GO

The Bond name may be the biggest licensing job around – a lot of software companies have wanted it for a very long time Domark have it – for *A View to a Kill* at least

At £10 99 it's not cheap and that, plus the fact that the name alone means it's going to sell thousands could have indicated a chance to cash in quickly When I saw the first of the three games that make up the package I feared the worst

Part One is a car chase across Paris – baddie/goodie Mayday is floating around on a hang glider – you have to chase her around using a fast car and be ready to meet up with her when she floats back to earth The screen is a mixture of top down view and three dimensional perspective Either way it looks fairly dreadful

The graphics are very small – so small in fact that it's almost impossible to tell which way around your car is facing The maze of streets is also pretty characterless – simple rectangles and circles, and the 3D front of car view appears to be useless – it doesn't even show the other traffic Not only all this but Bond appears to be driving one of those 'bump and go' toys since whenever the car hits a wall it seems to bounce back in the opposite direction.

Thankfully, however, the two subsequent games are considerably better In City Hall, the next section, we actually get to see James Bond himself I was shocked – the last Bond film I saw was *Moonraker* and Roger Moore looked quite well, but on the evidence of this game the poor spy is but a shadow of his former self, thin and rather weedy looking in fact.

Bond's walk also appears to have become a little strange There is a lightness of step and posture of hands one would ordinarily associate with a ballet dancer is Bond still the man he once was or is his chasing of women merely a hollow gesture? I think we

Pick of the week

HOLE IN ONE

There I was, just the other day, complaining about the fact that whilst golf simulations were a lot of fun they were almost always poorly or at least unexcitingly programmed. Lo and behold – *Nick Faldo's Open*, a golf game with all the trappings of animation, scrolling screens, and icons – and it's great.

Golf games are essentially simple – choose club type, set direction, set force of hit, and hope you end up somewhere near the flag So it is with this game, but making the various selections is all accomplished by the use of a little hand that you shunt around between different icons When all the parameters are set you move to a box with a golfer figure and caddie in it – assuming the club you have chosen is reasonably sensible the caddie hands it to you and the golfer swings at it When the ball moves the top half of the screen scrolls to show its position.

The screen scroll is very well done – the view is top down on an accurate map of the Royal St George Golf Course. The ball also travels correctly, seeming to grow as it comes 'up' towards you – such professional touches make the game Another nice touch is the sarcastic caddie who will question some of your club choices if you get something silly – he will also mock your score if it's particularly bad.

One criticism, when you get very close to the flag it becomes very difficult indeed to see exactly where the ball is Thus means it's very easy to drop a lot of shots without it really being your fault Perhaps it looks OK on monitors but on your usual small portable it's annoying

Nevertheless I loved it – this is definitely the golfing simulation to buy. A Commodore version is planned soon

Program *Nick Faldo's Open*
Price *£9 95*
Micro *Spectrum*
Supplies *Mind Games*
Liberty House
222 Regent Street
London W1R 7DB

This Week

Program	Type	Micro	Price	Supplier
Dun Darach	Ad	Amstrad	£9 95	Gargoyle Games
The Rocky Horror Show	Arc	Amstrad	£9 95	CRL
The Scout Steps Out	Arc	Amstrad	£7.95	Amsoft
Alex Higgens Snooker	S	Amstrad	£7 95	Amsoft
Alex Higgens Pool	S	Amstrad	£7.95	Amsoft
Catastrophes	Arc	Amstrad	£7 95	Amsoft
Silas	Ut	BBC	£6 95	Astral Software
The Hobbit	Ad	BBC B	£14 95	Melbourne House
Bobby Charlton Soccer	S	BBC B	£11 95	DACC
Mordon's Quest	Ad	Commodore 64	£6 95	Melbourne House
Red Moon	Ad	Commodore 64	£6 95	Level 9
Finders Keepers	Arc	Commodore 64	£1 99	Mastertronic
Hyper Sports	Arc	Commodore 64	£8 95	Imagine
Ian Botham Test Match	Arc	Commodore 64	£8 95	Tynesoft
Confuzion	S	Commodore 64	£6 95	Enterprise
Beetcha	Arc	Enterprise	£6 95	Enterprise
Crystal Frog	Ad	Spectrum	£1 95	Sentient
Malice in Wonderland	Ad	Spectrum	£1 95	Sentient
Mordon s Quest	Ad	Spectrum	£6 95	Melbourne House
Red Moon	Ad	Spectrum	£6.95	Level 9



should be told

The City Hall game is ingenious – a kind of mini animated graphics adventure

You are trapped in the building and must both rescue Stacey (femme futile) from a lift and escape from the building which is slowly burning away

The screen displays Bond and the current room he is in and a joystick controlled scrolling menu lets you search for objects, use them, drop them and so on Finding the right objects, doing the correct things with them and doing it quickly enough will get you and Stacey away safely

This section works well as a game and, apart from Bond's androgynous appearance, looks quite good too The same menu system is used in the final section, called Silicon Valley Mine

It's a very similar kind of game – move Bond around through the pits and caverns of a vast mine A nuclear detonator is ticking away when it explodes the baddy will have destroyed Silicon Valley and will then be able to capture the silicon chip market (I know a lot of manufacturers who'd happily hand it to him on a plate at the moment.)

To save the Yuppies and possibly everyone else Bond, still looking disturbingly effeminate, has to rescue Mayday and stop the timber Again it's a matter of finding objects and then figuring out what to do with them

The main difference in this section compared to City Hall is that it's a lot more action orientated, and you get to do a lot of leaping around from rocky platform to rocky platform Again, it works as a good game with some original touches

The music on the Commodore version is very good indeed – particularly the main Bond theme – and even Duran Duran's rather lame hit is performed on three channels with some degree of flair

The speech on the Commodore is also not bad – you can understand the words and it's used sparingly but effectively

None of this is true of the Spectrum version which has awful music and is utterly unintelligible.

A View to a Kill is no mega program but if you think of it as two good games featuring everybody's favourite hero for £10 99, it isn't a rip off either

Program *A View to a Kill*
Price *£10 99*
Micro *Commodore 64 (Spectrum + others)*
Supplier *Domark 204 Worple Road London SW20 8PN*

A KNOCK OUT

There are a few boxing simulations around at the moment. Probably the best is Gremlin Graphics' *Rocco* – certainly it features the most impressive animation and graphics

Rocco pits you against a series of fighters of growing skill – you simply try to last as long as possible The display is unusual – you see only your top half and the face and top half of your opponent

Controls are restricted heavily to left right defence and left right attack – this is either good or bad depending on how much you like very complicated simulations

The graphics really are spectacular, the two boxers are drawn in great detail with shading and highlights to give them a solid 3D look Even the crowd is impressive, throwing its arms up in the air with enthusiasm.

Program *Rocco*
Price *£7 95*
Micro *Spectrum*
Supplier *Gremlin Graphics Alpha House 10 Carver Street Sheffield*

BAD LUCK

Atlantis has earned a good reputation as one of the first and better budget software houses Alas its most recent release *Pioneer* is not destined to become a budget classic,

Pioneer is *Scramble* with a helicopter instead of a space ship or jet.

The graphics aren't bad really – the helicopter is quite large and the characters are a little more than matchsticks It's certainly difficult and in some ways challenging Why then the complaint? It's simple really – the scrolling is appalling, among the worst I've seen with jogging, jittery movements that spoil the game

Throw this one at a skilled machine code programmer for a couple of days and you might have a very neat budget shoot 'em up.

Program *Pioneer*
Price *£1 99*
Micro *Spectrum*
Supplies *Atlantis Software 19 Prebend Street London N1 8PF*

Metabolis Gremlin Graphics

In last week's magazine we mistakenly referred to the plot of *Metabolis* as involving freeing the world from beings called Kremlin, rather than Kremis.

We would like to emphasise that there is no political element to the plot of the game and apologise to Gremlin Graphics for the inconvenience caused.

This Week

Scoop	Ad	Spectrum	£1 99	Sentient
The Amulet	Ad	Spectrum	£1 99	Sentient
The Key to Time	Ad	Spectrum	£1 99	Sentient
Nonterraqueous	Arc	Spectrum	£1 99	Mastertronic
On the Run	Arc	Spectrum	£8 90	Design Design
Hyper Sports	S	Spectrum	£7 95	Imagine
Nick Faldo's Open	S	Spectrum	£9.95	Mind Games
Poker	S	Spectrum	£8 95	Duckworth
Rocco	S	Spectrum	£7 95	Gremlin Graphic

Amsoft, Brentwood House 169 Kings Road Brentwood, Essex 0277 230222 **Astral Software** 152 Melton Road, Stanton on the Wolds, Keyworth Nottingham WG12 5BQ **CRL** CRL House 9 Kings Yard, Carpenter's Road, London E15 2HD 01-533 2918 **DACC** 172 Finney Lane Heald Green Cheadle Cheshire SK8 3PU 061 437 0538 **Design Design** 125 Smedley Road Cheetham Hill Manchester M8 7RS **Duckworth** The Old Piano Factory 43 Gloucester Crescent London NW1 7DY **Enterprise** 31-37 Hoxton Street London N1 6NJ 01-739 4282 **Gargoyle Games** 74 King Street Dudley West Midlands Dudley 238777 **Gremlin Graphic** Alpha House 10 Carver Street, Sheffield S1 4FS 0742 753423 **Imagine** Imagine Software, 6 Central street, Manchester M2 5NS **Level 9** 229 Hughenden Road, High Wycombe Bucks HP13 5PG 0494 26871 **Mastertronic** Park Lorne, 111 Park Road, London NW8 7JL 01-402 3316 **Melbourne House** 39 Milton Trading Estate Abingdon Oxon OX14 4TD **Sentient** Branch House 18 Branch Road Armley Leeds West Yorkshire LS12 3AQ **Tynesoft** Addison Ind Estate Blaydon upon Tyne Tyne and Wear LE21 H2E



Untapped market

Only 10% of the potential home computer market has been tapped we have been told

So why is the remaining 90% not opening up, in fact doing the opposite if the stock exchange's attitude towards the home micro industry is anything to go by?

Perhaps it is because the potential purchasers are not as confused as the state of the market suggests the manufacturers are. Has any manufacturer ever tried some market research to find out what sort of product this 90% would want?

However, folk wisdom spreads fast and most of us seem to know now that small home micros are good for playing games on, can do a small amount of word processing if you have a printer and keep club records or the like. The 90% are not rushing out to buy one because they do not need what is on offer.

Thankfully the manufacturers have got the message that a 'proper' keyboard is essential now. Why we were insulted with anything else makes one wonder how seriously they took their own machines.

Other jokers in the pack have been software incompatibility and hardware that will not make standard connections to peripherals. But the home micro purchaser has just as much commonsense as a business purchaser, you are careful about buying a car where spare parts are difficult to get or service is scarce – it is no different with home micros. At least some manufacturers are cottoning on to the simple strategy of CP/M compatibility, even MS-Dos, to tap the software base available there.

So what might attract all those potential buyers? Answer the question, "What do they want that a home micro could offer in the next few years?" and you should have the right idea.

People buy micros mainly for their functional use, unlike many other products which have an element of 'image' to attract the buyer. So what could it do that will realise (or create?) what most of us want? We like to communicate, to be entertained and to be better informed.

So far a home micro caters for a limited amount of recreation. If it could also offer us a better means of communication and becoming informed than we have at present there would be a demand for it.

In other words if a micro could give you the sports results, the news headlines, let you leave a message with someone else and at weekends give you a demonstration of how to plant tomatoes or plan your route to the seaside then of course you would want one.

However, there is a gulf between what we have now and the world imagined in the previous paragraph. The technology needed will involve a device capable of producing high resolution displays in colour as well as managing video images. It will also need to reference and display large text files, like an encyclopaedia, and manipulate them at the touch of a mouse.

All of which points to a machine with considerable processing power – 16-bit at least – linked to a compact disc Rom (for those text files), a videodisc (for the gardening demos) and a modem (to leave messages).

The operating system will need to be easy to use but sufficiently powerful to handle multi-tasking.

Will it be a British-built machine? One can hope, but at the moment most of the work done so far to link micros to videos and compact disc players has been carried out by the Japanese MSX companies.

John Mawhood

Over the pond

Puzzle No 165

In our local park there is a circular fish pond, exactly 75 feet in diameter. Paula, Quentin, Rachel, and Stanley were standing at various points on the pond's edge.

As it happened, the two girls were standing diametrically opposite one another. Also, both of the girls were an exact number of feet from both of the boys. If Quentin was closer to Paula than he was to Rachel, and Stanley was closest of all to Paula, how far apart was each boy from each girl?

(Note: The distances are direct measurements – not those around the circumference of the pond.)

Solution to Puzzle 161

A total of 35,937,000 bricks would be needed to build either one cube with 330 bricks along each edge, or 99 individual cubes with sizes ascending from order 11 to order 109.

```
10 LET L=11
20 LET T=0
30 LET M=1
40 LET C=M*M*M
50 LET T=T+L*L*L
60 IF T=C THEN PRINT L,M
70 IF T>C THEN LET M=M+1:LET C=M*M*M:
   GOTO 60
80 LET L=L+1
90 GOTO 40
```

The program works by generating the series of cubes from 11^3 upwards, keeping a note of the sum of the cubes after each step. If this total is also an exact cube, the result is printed.

Because of inaccuracies in some computers when working out cube roots, it is not necessarily accurate enough to test the cube root of any given total. Consequently, the program generates a separate series of cubes and uses these values to test the totals obtained.

Winner of Puzzle 161

The winner is Ian Watts of Middleton Cheney, Banbury, Oxon, who receives £10.

Rules

The closing date of Puzzle 165 is August 7.

The Hackers

Flight simulators aren't very realistic though, are they?
Oh no!
FLIGHT SIMULATOR SPECIALISTS
COMPUTER GAMES
That's all changed nowadays! Why not see for yourself!
There should be one free soon.
GAGGCHH BLEECHH GECHHH ECHCCHHHRGH


ELITE GOES GOLD
ON THE 64
ELITE
Zzap! 64, May 1985
FIREBIRD
GOLD
EDITION